The Journal of the

American Medical Association

VOL. XX. CHICAGO, MARCH 18, 1893. No. 11.

ORIGINAL ARTICLES.

A CONTRIBUTION TO THE STUDY OF CHOREA LARYNGIS.

BY W. PEYRE PORCHER, M.D.,

OF CHARLESTON, S. C.

Lecturer on Laryngology and Rhinology and on Materia Medica and Therapeutics in the Charleston Medical Shcool. Visiting Laryngologist to the City Hospital, Charleston, S. C. Formerly lecturer on Laryngology and Rhinology and on Materia Medica and Therapeutics in the Medical College of the State of South Carolina, etc., etc.

The Hippocratic maxim, "naturam morborum curationes ostendunt," the cure shows the nature of the disease applies with more force, perhaps, to the study of chorea laryngis than anything in the whole field of medicine, for so erratic and inexplicable are the movements of the larynx and so hidden are the causes of the disease, that the most skilled pathologist or diagnostician finds himself at a loss to account for them.

Of the twenty-six cases already reported all but two have been followed by insensibility, but as this occurs so frequently after violent paroxysms of cough it cannot be regarded as a diagnostic symptom. The fact that not only may the choreic movements of the larynx exist without insensibility following them, and even that the cough also may be absent, makes it exceedingly difficult to classify any case as coming directly under this head, unless all the symptoms are considered as a whole, together with the general neurotic tendency of the family, etc.

In the *Medical News* of Philadelphia, March 19, 1892, Dr. W. C. Phillips, writes, "Of the various neuroses of the larynx, none is so rare or so unique in characteristics as that described as "laryngeal vertigo," "laryngeal epilepsy" and "complete glottic spasm in adults." So few cases of this affection have been reported that it would seem to be the duty of observers to report such cases as may come under their care, and for this reason I take occasion to add another to the list."

The case reported by Dr. Phillips, was accompanied by loss of consciousness after each attack of coughing, but Knight, McBride and others do not consider loss of consciousness as an essential feature to the disease. In fact two cases have been reported in which there was no cough, or loss of consciousness.

The history and nomenclature of the affection have already been so fully and ably discussed by others that no further elaboration is needed at my hands. I will therefore proceed at once with the report of the two most interesting cases which have so far come under my observation. In neither was there any insensibility at any time present and the second case was not even characterized by the complete closure of the glottis which existed in the first.

It was however, impossible to classify either case as anything but pure laryngeal chorea.

The treatment pursued in both cases was necessarily as varied as the symptoms themselves, for that which proved most effective in the first case was of but little benefit in the second. There were only three points which were common to both cases, viz.: the general chorea and neurotic element present, the violent and exhausting paroxysms of cough and the fact that in both cases treatment directed to the nose and naso pharynx was of more benefit than that applied to the larynx or anything given internally.

The first case was that of a spinster aged about 40, white. She was of a neurotic temperament with a very anæmic complexion. For several years past she has been subject to sudden attacks of closure of the glottis, lasting for several seconds, preceded by a violont cough and recurring at varying intervals, especially during the winter. As she describes it, "she was rendered speechless but not insensible." She had many years ago been subject to a very severe nervous strain, having witnessed the sudden and fearful death of a near relative, since which time she has had but little control over her nerves. She was especially liable to take cold and of course her symptoms were aggravated at that time. Her sight and hearing were good. She had no aural vertigo nor any stupor or mental confusion. The heart's action was sound but inclined to be weak. There was no perceptible disease of the lungs. The posterior turbinated bodies were somewhat hypertrophied, and the larynx and pharynx were very pale with profuse discharge of mucus from which she constantly endeavored to rid herself by clearing her throat. Her menstrual functions had been exceedingly irregular, months frequently passing without any return of them. She had no special diathesis except perhaps a slight malarial cachexia.

The laryngeal spasm was so annoying that she was obliged to take her meals in private, for fear that the excitement from the presence of others would bring on a paroxysm of coughing and a return of the spasm. There was no stupor or insensibility of any kind following these attacks. To test the paræsthesia of the larynx, however, on her first visit to me, I passed a probe armed with a pledget of cotton into the naso-pharynx; instantly there was a spasmodic closure of the glottis and the patient lost her breath completely, her face became lived, and several seconds elapsed before she was able to regain her breath. The uvula being somewhat elongated, I first removed a portion of it, and then began a series of manipulations in the naso-pharynx, as advised by Lenox Browne, "that the treatment should be directed rather to the pharynx than to to the larynx." A solution of argentic nit., alternated with the glycerine iodine, and iodide of potash solution was applied to the naso-pharynx every other day. Sulph. of codeia. grs. $\frac{3}{4}$, dissolved in alcohol and simple syrup was given her at night and repeated pro re nata, and the following spray was ordered to be inhaled every time the cough began, viz.: R. eucalyptol, oil pipsissewa, āā grs. ii; menthol, grs. iv; benzoinol, ounces iv. At the end of about a month she reported a complete cessation of the spasms and stopped treatment. At that time I could make any application to the naso-pharynx without exciting the slightest spasm of the glottis, and this freedom from spasm continued for perhaps two years, during which time she had no return of it of sufficient severity to cause her to apply for treatment again.

At the expiration of that time, however, she was brought back by her attending physician, and she then stated that she had had a violent and continu-

ous cough, all during her waking moments, for three months previous but not accompanied either by the spasm or any loss of consciousness. Her behavior proved the accuracy of this statement for she coughed so incessantly during her visit to me that she could only with difficulty describe her case. Her physician stated that he had tried every form of cough mixture, anodyne, etc., without avail. Anticipating that it might be due to some reflex irritation from the gastro intestinal tract, I ordered a mercurial cathartic, to be followed by the sulph. of codeia and inhalation as before, and I was myself surprised, as well as her friend, at the rapidity which her cough was checked. At her next visit on the third day, she reported that the cough had almost entirely left her, and the change for the better was extremely noticeable. In a recent note she informs me that she has had occasional returns of the cough during the winter but none of the spasmodic attacks, then or since, and adds "that the cough was finally paralyzed by the sulph. of codeia which her family physician advised her to take in the form of a powder three times a day, and that she is now enjoying a respite which she hopes will never cease."

Case 2.—Like the first, this was a case of chorea laryngis with paroxysmal cough. It was superinduced upon an attack of pernicious anæmia, but the symptoms of prolonged closure of the glottis followed by insensibility were both absent.

The patient was a maiden lady aged about 35, white. She had had a persistent cough for several years past. She had also one or more attacks of malaria which finally culminated in a severe attack of pernicious anæmia. She was exceedingly pale, eyes large and easily suffused. The violence of the paroxysms of cough had increased greatly during the last few months previous to her coming to me, and she was correspondingly weakened and prostrated after them.

Her family history was phthisical, having lost a sister from that disease. She had no heart disease, nor was there any perceptible derangement of the lungs and bronchi. The mucous membrane of the larynx and pharynx was very pale and exceedingly sensitive to irritation, and there was considerable engorgement of the tonsillar tissue and vessels at the base of the tongue.

The mucous membrane of the nose partook of the general condition: The middle turbinate on the right side was hypertrophied and pressure upon it by a probe would immediately set up a paroxysm of coughing. Referring to my notes on the case, I find that treatment for the first two or three weeks was without avail and during this time many things were tried. She was given large doses of syrup of ferri iod. Fowler's sol. of abscenic, sulph. of codeia, etc., internally; and locally anodyne inhalations and applications of various astringents and pigments were made; among which was a solution of fld. ext. krameria, sulpho carbonate of zinc, and eucalyptol, as advised by Dr. Roe of Rochester, N. Y., and the tonsillar tissue of the base of the tongue was thoroughly cauterized with the galvano-caustic needle. Very little benefit was derived from all this except that she seemed to think that the character of the cough had, to a certain extent, changed. I then noticed that after using a 10 per cent. spray of cocaine in the nose, which I did in order to facilitate examination, that although her voice would become decidedly hoarse, her cough would be distinctly lessened while the effect of the cocaine lasted she was therefore given a 4 per cent. spray of cocaine to be used in the nose during the paroxysms of cough and the right middle turbinate was cauterized with the galvano cautery. The effect was marked and satisfactory. The cough was materially lessened and the patient's general health greatly improved. This improvement continued for about two weeks, when I was obliged to leave the city for a short time and a relapse occurred. The cough and incessant clearing of the throat returned with almost the same severity as at first, and the patient complained very much of the weakness following the attacks. She was then ordered ferri carb. precipitata, grs. xv, between meals, sulp. codeia grs. $\frac{3}{4}$ to 1, at night, and the middle turbinate and lingual varix were cauterized. Improvement has again taken place, the cough has greatly diminished and the patient's recovery is now assured.

It will be noticed in both of these cases that the treatment from which most benefit arrived, was directed rather to the upper than the lower respiratory tract. In the second case the effect of cocaine in the nose is of especial interest, as most writers, notably Drs. Roe, Major, and others, agree that cocaine, when sprayed into the larynx, is rather injurious than otherwise. The patient herself thinks that the cocaine spray had a better effect than anything else that was used, and so stated to me.

Further comment on these cases is perhaps unnecessary, but it is interesting to note that in spite of the general chorea, the disease affecting the larynx was undoubtedly purely reflex, as proven by the treatment—which only succeeded in the second case after I had experimented with almost every method of treatment which has, so far, been recommended, that I am aware of. At one time this patient and myself had almost become discouraged; she at having taken so much medicine without avail and I at having almost exhausted the pharmacopœia, and it was only by repeated assurances that her recovery was both possible and probable that I persuaded her to submit to further treatment. The discovery was then made of the influence of cocaine and cauterization in the nose, and it finally resulted in the cure of the case.

4 George Street.

THE EXTERNAL TREATMENT OF ACUTE VESICULAR ECZEMA.

Read in the Section of Dermatology and Syphilography, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY LOUIS A. DUHRING, M.D.,
PROFESSOR OF SKIN DISEASES, UNIVERSITY OF PENNSYLVANIA.

There is no cutaneous disease in the acute stage that the general practitioner is called upon to treat more frequently than eczema. In one variety or another in its earliest manifestations he is continually meeting with it, inasmuch as it falls to his lot rather than to that of the specialist. The latter, in private practice at least, seldom has the opportunity of observing the disease in the first stage, and rarely until some application, soothing or irritating, has been employed. Frequently it is the latter kind of remedy that has been applied, thus augmenting the already actively inflamed cutaneous surface, increasing cell proliferation and exudation, serous or plastic, as the case may be. Such examples of acute eczema, undoubtedly aggravated by the application used, injudicious as to the remedy itself, or, as is often the case, as to the strength, frequently find their way to the specialist. It is with the view of directing the attention of the general practitioner to some of the remedies and formulas that I have found most useful in treating this stage of the disease that I beg to present the following remarks.

The subject in its several aspects is capable of such extension that in order not to consume too much time it will be necessary to exclude a great deal that might be touched upon. I will consider, therefore, one variety of the disease, acute vesicular eczema, the variety in which this disease frequently manifests itself as an acute eruption. It generally makes its appearance rather suddenly, and often spreads rapidly, in the course of a few days demanding

active treatment. A variable amount of itching and burning exists, which is usually severe, together with more or less erythema, vesiculation, or an open, excoriated surface, cutaneous œdema, and infiltration. Owing to the irresistable desire to scratch, the weak and seriously infiltrated epidermis is soon excoriated, and the disease thereby aggravated. It is just at this stage of the pathological process that so much can be done by local treatment to relieve the condition of congestion and cell proliferation, both of which usually gain force rapidly from day to day if permitted to pursue their course unchecked. There is no pathological process which runs a more rapid course, especially after the horny layer has been raised or detached. Now is the moment for suitable applications, and it is gratifying to note frequently how much may be accomplished in twenty-four hours towards arresting the process and in affording comparative ease to the patient. It is not essential for my purpose that the regions affected should be specified, nor does it matter whether the disease be confined to a small or a large area. In most cases, however, the eruption occupies considerable surface upon a given locality, as for example, the face, or one or both forearms, upon which the lesions may be either widely disseminated or in the form of patches. Sometimes large surfaces, as the abdomen and sides of the thorax, or the thighs are invaded.

The mode of applying the remedies selected is more important than most physicians are inclined to think. To the majority of skins it makes a vast difference whether an ointment or a lotion is used. Experience shows us every day that to some skins ointments are more acceptable than lotions, and *vice versa*. One may relieve, the other may aggravate. In other instances the firmer and more consistent pastes prove more serviceable than the salves. In the majority of cases they are decidedly more valuable than ointments, and consequently play an important part in the therapeutics of eczema. To say whether one or the other of these modes of application is indicated in a given case is, I believe, largely to be determined by experience, but even with this advantage the wrong mode may be selected. There are, however, some indications to which attention may be directed which may aid in deciding this question. Thus we find that in acute erythematous eczema, washes are generally tolerated better than salves, and pastes better than salves. In acute vesicular eczema, mildly stimulating washes followed by salves or pastes are usually more serviceable than washes alone. Salves alone, employed in the form of inunction, the popular method of applying them, are as a rule not beneficial. The general physique, complexion and nutrition of the patient, and especially the nutrition of the integument and its vascularity, together with the dryness or scaliness of the horny layer, should all be taken into consideration. Skins possessed of good nutrition and with a fairly healthy vascular tone, and fleshy subjects, do best under washes, while the thin, pale, anæmic skins generally improve under fatty applications in the form of pastes and salves. There is one point of practical importance in the use of applications of whatever kind they may be, and that is that in acute eczema they should never be rubbed in. Friction in this stage of the disease is always injurious. It is distinctly aggravating to the disease, and is to be deprecated. This is an important principle to be remembered. Prescribe an ointment and commit it to the patient without explicit directions as to the mode of using it, and the chances are that it will be applied with more or less friction. Patients, even the most intelligent, require to be told precisely how to use the remedy ordered. The principles of the treatment should be explained to them. By friction the deranged skin is further stirred up, excited and irritated, when just the opposite effect is desired. The object to be attained by applications is to ease the congested capillaries of the skin by backing the fluids or keeping them as much as possible from the surface, and secondly to give relief to the irritated terminal nerve filaments supplying the germ layer of the epidermis and the papillary layer. The regulation, therefore, of the distribution of the blood and lymph, and a direct local sedative action upon the cutaneous nerve filaments, are the two most important effects to be striven for.

Having thus briefly alluded to the existing pathological condition and to the general principle involved in the treatment, reference may be made to some of the remedies, and, what is of great importance, to the formulæ. I shall refer more particularly to those which are in common use and are obtainable in any drug store. The local therapeutics of diseases of the skin are to some extent influenced by the fashion of the day, as in the case of surgical dressings in general, but there are certain drugs and standard formulæ that will always remain in vogue. One of such remedies for acute vesicular eczema is the officinal black-wash, employed according to a certain method. It is to be diluted with one or two parts of lime water, to which a little alcohol or mucilage of tragacanth may be added, about a half-drachm to four ounces. This is used after the manner of an evaporating wash, dabbed lightly on the vesicular or oozing surface with the sediment for twenty or thirty minutes and then allowed to dry on the skin, when a layer of oxide of zinc ointment, thickly and evenly spread on soft cloths, is to be applied and bound on with a bandage. The manufactured, spread oxide of zinc muslin-salve, as devised by Unna, may also be employed, with the advantage of being accurately spread, and consequently neater and cleaner. The applications of wash and salve should be repeated three or four times in the twenty-four hours. Relief from the itching and burning is often experienced immediately, and in a day or two a decided subsidence of the symptoms may be looked for. This plan of treatment is one that I have employed in innumerable cases for many years past, both in hospital and private practice, and can be recommended as being both simple and efficacious. A saturated solution of boric acid, to which sometimes a few drops of alcohol or glycerine, or both, may be added, will also prove soothing in some cases, especially where the horny layer is macerated or wanting, leaving the germ layer exposed. In these cases, too, a weak resorcin wash may be prescribed, as follows:

℞. Resorcin, ʒss–ʒj.
Glycerin, f℥ss.
Aq. dest., f℥vj. ℳ.

The strength of the resorcin it will be noted is weak,—five or ten grains to the ounce. Where the integrity of the horny layer is not much impaired, the strength may be increased, but as a rule the best

results are obtained with a weak strength. It is a remedy of value not only in acute but also in other stages of eczema, and in some other diseases, especially dry seborrhœa of the scalp. As in the case of salicylic acid, the action of resorcin depends largely upon the strength employed. Both of these drugs, which have been in dermatological use for about ten years, possess two kinds of action, one soothing, when applied weak, the other stimulating or mildly caustic, and destructive to the epidermis when used strong. Salicylic acid, especially in the form of an ointment spread on cloths or a paste proves most beneficial in the strength of about ten grains to the ounce. It is, however, of more value in the subacute stage and in recurrences of the disease than in the first outbreak. The paste referred to has as a basis from two to four parts of oxide of zinc to four parts of petroleum.

Another formula, proposed by Lassar, consists of oxide of zinc and powdered starch each two drachms and four drachms of petroleum. Pastes of this kind, soft or stiff in consistence, according to the needs of the case, and simple or medicated, are especially useful as night dressings, but they may be employed with equal benefit through the day. For the face and hands, in order to overcome the objectionable white color of the zinc oxide, I have substituted a certain amount of calamine for the zinc, a drachm or two to the ounce. Pastes of this kind should be lightly smeared over the surface, so as to form a thin coating. They adhere to the skin satisfactorily, drying in more or less rapidly, according to their consistence. They should never be rubbed in with friction. In cases where fats are not tolerated by skin, good results may be obtained from the employment of a plasma, or basis-substance composed of tragacanth, glycerine and water, as has lately been brought forward by Prof. Pick, of Prague. I have experimented considerably with this plasma, made in various proportions, but usually employ the following formula: Tragacanth, 5 parts; glycerine, 2 parts; boiling water, 93 parts. Triturate the tragacanth until a smooth mass results, when the glycerine is added; a thin, jelly-like substance is obtained, which is spread easily over the skin and dries rapidly, forming a film or coating. As it tends to sour on being kept long, I usually add two per cent. of boric acid. With this plasma as a basis-substance may be incorporated for acute vesicular eczema, such drugs as oxide of zinc, calamine, litharge, and boric acid, in small quantities, in order not to make the preparation too stiff for satisfactory use. It possesses the advantage of being removable by washing, although if much zinc oxide, which is adhesive, be used, it adheres and is easily removed.

I desire also to call attention to a class of lotions containing in suspension powders, for the most part bland or soothing, which act favorably upon inflamed, vesiculating skins by the deposit excluding the air, and through the cooling effect of evaporation. A formula of this kind consists of prepared calamine, in fine powder, 3ss; oxide of zinc, 3ss; glycerine, xv; lime water, 3iv. This is to be dabbed lightly on the skin for twenty or thirty minutes every few hours. Subnitrate of bismuth may be substituted for the calamine and zinc. To washes of this character other more active ingredients may sometimes be added with benefit, in all instances in weak strength. Thus, resorcin which is freely soluble in water, five or ten grains to the ounce; the tincture of coal tar in the same strength or weaker; carbolic acid and ichthyol, both in similar strength, are all serviceable. But such remedies should be used tentatively, at first, for the skin often rebels against them, preferring the blander applications. Sulphate of zinc in solution, from a quarter of a grain to a grain to the ounce, either alone or with other lotions, as the calamine, sometime acts as a mild astringent and as a sedative. Similar in its action, though less caustic, is the compound zinc sulphide lotion, made as follows: Zinc sulphate and potassium sulphide, each from two to five grains; water, four ounces. This forms a light, white precipitate. The salts must be fresh and each mixed with a little water separately and then combined.

The protective and soothing ointments of most value are diachylon ointment, made with the finest olive oil and litharge, or with equal parts of diachylon plaster and petrolatum. The latter is an inferior ointment to the first for the purpose. Oxide of zinc and bismuth subnitrate, one and a half drachms to the ounce of lard or petrolatum are also grateful to the skin. Refrigerant salves are also acceptable at times. These, owing to the evaporation of water they contain, are often cooling. Examples of them are found in the numerous so-called cold cream ointments, all of which contain water. To all of these ointments as a basis various soothing and sedative substances, such as boric acid, carbolic acid salicylic acid may be incorporated with advantage. Bland dusting powders are sometimes of service in acute vesicular eczema, but my experience with them shows that they do not benefit so much as the modes of treatment already referred to. They are most useful following the application of soothing lotions. Medicated dusting powders are liable to irritate, notwithstanding the favorable reputation they possess. Cleansing agents more or less detersive, to remove crusts and scales, should be used cautiously, and in most cases are not called for, the effete material being removable more effectually and without irritation by lotions, pastes or salves. Plain water should be used as little as possible. Soaps, even the milder or neutral kinds are not well borne, and the same may be said of medicated soaps. Alkaline washes are usually irritating, and so are oils and glycerine. This latter substance extracts and absorbs moisture from the diseased and macerated epidermis and the papillary layer, and thus aggravates the disease.

A word may be said concerning the importance of rest and position, where the eruption occupies considerable surface or exists upon the extremities. The skin and especially the capillary circulation calls for rest and freedom from all possible sources of irritation. Motion or exercise of any kind that tends to draw the circulating fluids to the part is injurious and should be avoided. In the case of an extremity, the various local symptoms will be arrested more speedily by means of the remedies used if attention be paid to this point.

I have thus endeavored to sketch very briefly the principles which should govern the local treatment of the acute vesticular variety of this disease. The subject might readily be elaborated into a lengthy essay but the aim has rather been to put the essential matter into as few words as possible. The remedies and formulæ given are those in daily use in hospitals and private practice, and I think may be relied upon in suitable cases.

ONE YEAR'S WORK IN TUBAL AND OVARIAN LAPAROTOMIES. THIRTY-SEVEN CASES WITHOUT A DEATH.

BY FRANKLIN H. MARTIN M.D.,

Professor of Gynecology, Post-Graduate School, Chicago; Surgeon to Woman's Hospital; Chief of Staff and Gynecologist to Chicago Charity Hospital; Member of American Gynecological Society and Chicago Gynecological Society, etc.

Between August 1, 1891, and August 1, 1892, I performed thirty-seven laparotomies which involved the removal of the tubes or ovaries of one or both sides. Of these cases, seventeen were for pyosalpynx, one for tubal hematocele, one for extra-uterine or tubal pregnancy, three for removal of appendages for fibroid, one removal of appendages for hystero epilepsy, twelve ovariotomies for ovarian cysts, and one for solid ovarian tumors. These thirty-seven cases were operated upon without a death. Neither does this series of successes represent a lot with death at either end. Back of them, in May, 1892, was my last death in this kind of work, there being nine successful operations between it and this report, and four successful ones since August 1, the end of this report, making a gratifying, and not altogether usual series of fifty consecutive cases without a death. This report, however, deals alone with the year's work of thirty-seven cases.

A successful operator, like an orthodox Christian, should be a trinitarian. The parallel holds good to the extent that if he neglects one member of the trinity, he is as effectually lost as though he neglected all. The operator's trinity consists of, 1. Thorough preparation; 2. Thorough operating; 3. Thorough after-treatment.

PREPARATION.

I can speak only of the immediate preparation of a patient for an abdominal section. It must be taken for granted that the patient has been examined physically, and pronounced in a general way, in a conditon for a severe operation.

Kidneys.—When a patient enters the hospital for an operation, the house physician gives orders to measure the urine passed in twenty-four hours. It is carefully examined by the house physician, chemically and microscopically. If, in this examination, the urine is found approximately normal in quantity, if it contains no albumen, pus, sugar or casts, preparations are commenced for the operation, and the day before it is to be performed the urine is submitted to a second examination. If at this time it passes muster, the patient is considered safe, as far as the kidneys are concerned, if they are carefully watched after the operation.

These precautions, however, have not always served me. I have had three cases in which albumen was not present before operating, which developed serious symptoms subsequently, proving that my preparatory examination of the secretion was at fault, and that in reality the patient had an undiscovered chronic nephritis when I operated, which was lying dormant, only to be roused into serious activity by the anæsthetic and shock of the operation. Through consultation with my friend, Dr. C. W. Purdy, in a few of these cases, I have learned that I am not safe until I have demonstrated the quantity of urea to be of the correct proportion, and also that valuable hints may be obtained by noting the arterial tension, etc.

Bowels.—In preparing patients for an ordinary laparotomy I begin preparations of the bowels two nights before the morning of the operation. The first point is to seek thorough emptying of the bowels throughout their entire length. The second point should be to render their contents thoroughly aseptic and the third point should be to impart to them a maximum tonicity.

The bowels are emptied by means of mercureals and salines. The first night of preparation of the bowels gr. vi of blue mass is given. The next morning at 6 A.M., 3i doses of each, citrate magnesia and sulphate magnesia, are given every hour until the bowels move, or feel as though they would move with the aid of a small enema. This ought to insure a thorough movement of the entire length of the intestinal canal. If the movements of the bowels are such, with the above treatment, to insure a thorough evacuation, and to start a free flow of bile, as indicated by the yellow glistening appearance of the stool, no further catharsis is necessary. The lower bowel should be thoroughly evacuated, however, by the employment of large enemas of soap and water, repeated four or five times during this second day of preparation. The last enema should be given late in the afternoon of this second day of preparation, if the operation is to be done the following morning, and the next morning if the operation is to be performed in the afternoon. The bowels are rendered aseptic by large doses of bismuth and salol. During the first and second days of preparation, gr. x of salol and gr. xx of subnitrate of bismuth should be given every six hours.

The bowels are stimulated by means of a carminitive, an alcoholic stimulant and strychnine. The second day of operation, 1 drachm doses of tr. cardomons in 1 oz. of brandy are given every six hours. Strychnine is commenced three days before operation in $\frac{1}{60}$ gr. doses every eight hours, and gradually increased in quantity until $\frac{1}{30}$ gr. doses are given. The bowels should be kept in a thoroughly aseptic condition by feeding the patient a milk diet for two days before the operation.

External preparation of the patient.—The first day of the preparation the patient should receive a thorough general bath and then be placed in clean clothing and a clean bed. The abdomen should then be rubbed with a saturated solution of permanganate of potassium until it is of a uniform mahogany color. This should now be scrubbed off by means of a sponge or brush and the application of a saturated solution of oxalic acid. A green soap compress should now be bound on to the abdomen, this latter to remain all night. Vaginal douches of first soap and water, second, $\frac{1}{5000}$ bichloride solution, and third, plain sterilized water should be employed this first night. These should be repeated the night before the operation, and a last vaginal douche given immediately before the operation. The second night of preparation should begin with shaving of the abdomen and pubis, and should be followed by applying a bichloride compress. Immediately before the operation, after this compress is removed, the abdomen should be scrubbed with green soap and hot water, this to be followed with alcohol or ether, and covered with antiseptic towel until the incision is made.

The bladder should be evacuated by means of a catheter immediately before the operation.

Dress.—The patient is put into a long loose woolen night gown immediately after an operation, and is thoroughly covered, except the abdomen, with flannel blankets during the operation.

The room should be relieved of all superfluous furniture, thoroughly sealed and then fumigated by burning stick sulphur. The bed should be aseptic and provided with rubber sheet, draw sheets, etc.

OPERATION.

Assistants and nurses.—These participants, in a peritoneal section, should be required to take a general bath the night preceding the operation and to put on clean linen and underclothing. The hair should be included in the bath. Before entering the operating room, all heavy clothing should be removed and a clean white wash-suit substituted. The hands and forearms should be scrubbed for fifteen minutes in green soap and warm water, the water being changed frequently. The nails should be cut short and well cleaned. The hands should then be thoroughly scrubbed in $\frac{1}{1000}$ bichloride solution.

The instruments.—Silk ligatures and silkworm gut should be sterilized by boiling, steam or dry heat, and then placed in shallow trays on a small table to the right of the operator, and covered with sterilized water.

Operating room.—A steam or dry heat sterilizer containing dressings should be convenient to the nurse. Reservoirs of sterilized water, hot and cold, should be placed near the sponge table. A large glass irrigator should be at hand. The table with which the Trendelenburg position may be obtained is necessary, and should be placed in an advantageous position for light and assistants. The arrangements should be approximately as follows: The table near the centre of the room with head of patient toward the chief window. Anæsthetizer at head of patient. Operator on right of table (from head). Chief assistant and assistants opposite operator with the chief nearer the head of the table. The surgical nurse in charge of instruments at stand to right of operator. Nurse in charge at foot of table with sponge dish on small stand in reach of second assistant. Assistant nurse to her right, the latter to work sponges, and to attend to irrigator, sterilized water, etc. Superintending nurse without regular assignment ready for emergency. To left of operator, small table with sterilized solution for hands. Back of the assistants a similar table. Visiting physicians, admitted after everything is ready for the operation to begin, are arranged around the room out of reach of the operating corps or any concerned in the operation.

Operation.—I am suspicious of an operator who operates on time. The best operators are those who operate well in the smallest space of time; this implies that the best operators are slow operators. An abdominal incision should be a clean, true, unhaggled cut, so that accurate coaptation is possible. Cold sponges should be employed on the external incision in order to contract the capillary vessels and check their bleeding without the necessity of a forcep. Forceps should be employed, however, everywhere in abdominal surgery where their use will save blood, because, most of our old fashioned shock was caused by unnecessary loss of blood. Keep the operative field free from oozing points if possible, even at the loss of a little time. The peritoneum is best opened between two catch forceps after being elevated so as to present a thin fold. After a small opening is made, the finger passed into the cavity should act as a guide upon which to complete the incision. The peritoneal edges should be attached to the integumentary edges by means of catch forceps, to prevent its subsequent pealing off from the abdominal walls by the manipulation. In all pelvic surgery of smaller tumors, the pelvis should at this point be elevated by means of the Trendelenburg table; the elevation being just sufficient to draw the bowels away from the field of operation, and to elevate the contents of the pelvis. Sterilized silk should be employed for any pedicle which it is safe to tie and drop. Catgut may be employed to close simple peritoneal rents. Means of securing pedicles in abdominal hysterectomy will not be discussed here further than to say that they should be secured externally, either in the abdominal incision or in the vagina. Where practicable, I prefer the latter.

Drainage should be employed in all cases where extensive enucleation has occurred, or where there is a slow venous oozing from separated adhesions. Drainage, in competent hands, never does harm, therefore, where there is the slightest doubt, it should be employed. It has saved many lives, and makes more comfortable those who might not have died without it, but who have been given the advantage of it.

After my operation is finished, the peritoneal cavity is flushed, if that procedure is considered necessary; then if there has been at the operation a process of enucleation, leaving of necessity slight oozing points, or in cases where ordinary adhesions have been separated, after drying the cavity as far as possible, I place in the cul-de-sac a glass drainage tube and pump out any remaining fluid. I next protect the abdominal contents from the abdominal wound with a large flat sponge, and insert the sutures, after which I again pump the drainage tube. If there is more than a drachm of bloody fluid, I leave tube in until the sutures are nearly all tied and the sponge removed; then I make a last trial of the tube. If the fluid amounts to ½ drachm or more, and is bloody, I allow the tube to remain; if, on the contrary, the tube is nearly dry, or the contents is simply colored water, the result of the flushing, I remove the tube. Of course what has been done influences one in regard to drainage. I almost invariably drain after it has been necessary to flush. I believe the peritoneum is satisfied, to an extent, by the flushing, and will consequently neglect, in a degree, to absorb any remaining fluid. Experience seems to sustain that argument. Mikulicz drain is almost indispensable in a limited number of cases. Cavities may be packed with gauze which cannot be reached with a glass drainage tube. Hæmorrhages in cavities so packed will cease, when a glass drain would not avail. Operations are now possible with the Mikulicz drain which were impossible without it. The question about drainage is not, shall we drain? but how, and how often shall we drain?

To Prevent Intestinal Obstruction.—One in abdominal surgery is constantly watching the behavior of the intestines. They are our prominent point of attack in our preparatory treatment, they are our greatest source of anxiety during the operation, and upon their management after the operation much watchfulness is imposed. All of this anxiety is

caused by our desire (with the exception of care against wounding when operating) to prevent obstruction. It, therefore, is a point in the technique of this work to which discusion may profitably be directed.

The pathology of obstructions is well summed up by a recent valuable contribution on this subject by Dr. Ashton of Philadelphia, from which I quote.

"1. Adhesions between the intestines and raw surfaces.

(*a*) To an omental stump.

(*b*) To the edges of the vaginal wound following supra-pubic or vaginal hysterectomy.

(*c*) To a pedicle.

(*d*) To raw surfaces on the intestinal wall.

"2. Paralysis of the intestines.

"3. Local spasm of the intestines.

"4. Impacted feces.

"5. Bands of inflammatory lymph.

"6. Adhesions between coils of intestines or between the gut and neighboring parts, due to traumatic inflammation.

"7. Kinking or twisting of the intestines, due to faulty technique.

"8. Including the intestines within the loop of a suture of the abdominal wall, or between the edges of the abdominal incision.

"9. Slipping of a coil of intestine through a slit or an aperture.

Under the first head, "Adhesions between the intestines and raw surfaces," we must seek our remedy during and following the operation. Intestines should be handled and exposed as little as possible in order not to produce hyperæmia or denudation of their surfaces. An omental stump of any considerable size should be selveged by inverting its raw edges with a running catgut, or with ligature. When denudations of the pelvic or intestinal peritoneum cannot be reinforced by a superabundance in the neighborhood, care should be taken to carefully arrange the intestines in as near the normal position as possible. A pedicle of large size should be covered by securing over its end the peritoneal covering with a running stitch. Raw surfaces of any considerable size on the intestines should be covered with an omental graft, with the edges well secured. Paralysis of the intestines may be avoided by emptying them thoroughly previous to operation of all irritating matter (which may ferment and cause distention) by rendering the contents aseptic by means of bismuth and salol, and the employment of full doses of strychnia to act as a muscular tonic. Carminitives, such as wintergreen, cardomon, etc., may also be employed as antiseptics and muscular tonics. During the operation the intestines should not be handled or chilled, in order to avoid paralysis. After the operation, nourishment of a non-fermentive and easily absorbable nature should be employed. The bowels should be stimulated to easy action in order to keep them empty and avoid the beginning of distention, which soon lead to paralysis. An early movement of the bowels, or free passage of flatus, too, assures a normal disposition of the bowels as regards location. If they adhere after such time, it will be in an advantageous, not cramped position.

A flat sponge beneath the abdominal wound, after carefully spreading down the omentum and before the wound sutures are inserted, will avoid including an intestine within the loop of a suture, or between the edges of the abdominal wound.

When ventral fixation is practiced, great care should be exercised in disposing of the intestines in such a manner as to avoid their slipping through the opening left between the uterus and the abdominal wound.

Pelvic Suppuration.—I think the more one operates and becomes familiar with pelvic suppuration, the more one is inclined, in dealing with such cases, to go into the abdomen to unravel the tubes and ovaries, the invariable (with rare exception) seat of such suppuration, and to make a sure thing of the case by removing them. In other words, while most of us might open a pelvic abcess of long standing which is pointing low in the pelvis, through the vagina, and drain it, we are pretty certain, from our surgical experience in the abdomen, that the other side, entirely disconnected with the first, is also suppurating. At best, we have only temporized, and must finish up at some other time, or allow the woman to go on suffering. I must confess that I have never found pus in the pelvis that was not directly traceable to the fallopian tubes. Again, I must confess that I have rarely found pus in one fallopian tube that both did not contain it. Case six in my year's work was a notable exception to this. The right side only was infected the abscess being enucleated with great difficulty, involving apparently the head of the cecum. The source of the infection was undoubtedly the appendix vermiformis. That, of course, takes it out of the category of strictly pelvic suppuration.

It is a comparatively easy matter to enucleate a tubal abscess after a little practice. Where we find one tubal abscess, we are liable to find two. When we go at these abscesses through an abdominal wound we can remove both sources of pus together with its walls and secreting surfaces through one opening. When the abscesses are removed in this way, the case is at once put in a position to get absolutely well in as short a time as she can recover from a laparotomy —say four weeks.

It is a comparatively easy matter to incise an abscess which can be felt through the roof of the vagina. It is an easy matter, after the pus flows out and the opening is dilated, to put in a drainage tube and wash out the cavity. It may be an easy matter for a nurse to continue this washing-out process for several weeks or months. It may not be necessary in all cases for the drainage tube to be worn for a long time; but, in a large percentage of cases, drainage for a considerable time is required, while in a few cases it goes on forever. Now after all this, but one tube is drained unless two incisions have been made. This is not often likely to be the case, as one side is more liable to appear prominent than both. The case is left unfinished, therefore, or at least, uncertain.

With our present light, then, considering that the immediate mortality is about the same with either operation, I should most emphaticaly favor the abdominal operation for pelvic suppuration, except, possibly, in very rare instances. As to what those rare instances might be, I am not quite clear.

AFTER-TREATMENT.

Immediate treatment consists in stimulating the patient out of any tendency to nervous shock which may exist. She is placed in bed and surrounded with dry heat. If there has been any considerable

loss of blood, the feet may be elevated in order to restore normal blood pressure in the brain. In severe cases of shock from loss of blood, it is well to bandage the blood out of the lower extremities by means of elastic bandages. A saline solution under the integument may assist to fill the blood-vessels. Oftentimes the difficulty is not lack of fluids so much as lack of tone, which allows a patient to bleed to death, as some one has put it, "into her own dilated capillaries and venules!" Here direct arterial stimulants and vaso constrictor remedies are called for, as well as strong nerve stimulants. In these cases, I immediately order hypodermics of nitro-glycerine, strychnine and digitaline. Stimulating enemas of whisky and warm water may also be given. What is done for shock should be done promptly, as patients who are allowed to go on for a few hours with a subnormal temperature and high pulse, are with great difficulty recovered.

Dressing Tube.—The drainage tube, when it is allowed to remain, should be dressed the first time in one hour. If the fluid is more than a drachm it should be dressed again in an hour, if a drachm or less, the interval between dressings should be increased one hour, and the same rule followed until the fluid is less than a drachm and of a light amber color, and the interval from four to six hours. At this time the tube may be removed. If the tube is left longer than thirty-six hours, it should be carefully washed out with warm sterilized water before removal, and a piece of sterilized gauze left in its place for six hours—when the latter is removed and the wound is closed with slight pressure, and its closure is obtained by extra pressure of external straps.

Dressings.—The wound is closed with silkworm gut and dusted with iodoform, and the dressing is a thick one of iodoform gauze held in place by adhesive straps tight enough to take the strain off the sutures without puckering the integument. Over this is placed a good allowance of absorbent cotton, and all retained with a binder.

The dressings are not disturbed for four days unless there is pain or temperature. At the end of the fourth day, the dressings are carefully removed, and the wound is thoroughly but carefully washed with equal parts of 95 per cent. alcohol and 1–5000 bichloride solution. Iodoform is again applied and the dressings renewed. The seventh day, before the stitches are removed, I again have the wound washed in the same manner and, after their removal, dressed as before.

Bowels.—If flatus has not passed freely per rectum in twenty-four hours by the simple employment of the rectal tube, I employ the "One, one, one" enema, —one oz. of sulphate magnesia, one oz. glycerine, and one oz. water. If this does does not start the gas in two hours, I order it repeated in double quantities. If this enema is not retained, and flatus has not passed, I order an enema of soap and water one pint, with one-half drachm of turpentine. If they are still obdurate, I begin one-half grain doses of calomel in ten grains of bicarbonate of soda, given every two hours for four doses, or until gas passes, alternated with drachm doses each of gran. citrate magnesia and sulphate magnesia in an ounce of water. Following these remedies in one hour, another "One, one, one" enema is given. It must be an obstinate case indeed that will not yield under the above remedies. If the stomach is irritable and will not tolerate the bicarbonate of soda, the calomel may be given dry on the tongue. Other salines may be substituted for the above if they are objectionable.

The bowels should be moved from above on the fifth day with small doses of some effervescing salt, or, if required, a more vigorous laxative.

Diet.—First week, fluids; second week, semi-solids; third week, semi-solid and solid food in small quantities; fourth week, good substantial food, with a few curtailments.

As soon as the patient is out of the anæsthetic, I begin to give hot water in teaspoonful doses as often as every fifteen minutes. If the stomach tolerates this, the quantity is increased to one-half ounce, and the interval may be increased in length. If the patient is nauseated and the hot water causes vomiting (and it should be hot water), or increases the nausea, it should be withheld. When the patient can take the hot water, and still complains of thirst and begs for cold water, the nurse is instructed to let her rinse her mouth with cold water. Ginger ale is a good alternate with water for the first twenty-four hours. After twelve hours, drachm doses of peptonized milk may be sandwiched with the water. If peptonized milk is offensive, plain sterilized milk may be substituted, or sterilized milk and lime water. Milk in some form, I feel to be the most perfect food. It should be increased every hour until ʒss. doses are given by twenty-four hours, to one ounce by forty-eight hours, and to two ounces by the end of sixty hours. Barley water may be alternated with the milk. Later, the monotony may be relieved with the meat and shell-fish broths, thin gruels, etc. The fourth or fifth day the patient may be allowed to extract the juice of broiled beef by chewing it; the fibre, of course, should be rejected. Tea may be given the second or third day as a relish. Orange juice, and the juice of other fruits, may be given in small quantities the third or fourth day. Rules cannot be laid down in regard to the diet of these patients, general principles only can be hinted at. The patient should be seen each day, and her wants studied. If stimulants are required, one of the best is good brandy. Champagne is all right if its sweetness does not make it objectionable. If patients are unable to retain enough by stomach to properly nourish them, enemas of either plain milk or stimulants should be resorted to.

Getting Up.—Uncomplicated cases are gradually bolstered up until they can sit in a bed with a bed-rest at about the fifteenth or sixteenth day, sit up in a large chair at the twenty-first day, and leave the hospital from the twenty-eighth to the fortieth day.

CASES.

Case 1.—Mrs. F., age 40, came to me suffering with uterine hæmorrhages because of uterine fibroids. The whole tumor, including the uterus was not more than a half larger than a normal uterus. The body of the uterus contained three distinct centers of development of small fibroids projecting into the peritoneal cavity. Electricity was employed on the case but without accomplishing more than a tonic effect because, undoubtedly, of the multiple development. Like all tumors of this sort, there was great suffering at the menstrual period, as well as during the intra-monthly period. The removal of the appendages was at last decided upon as being likely to give the best results with a minimum risk. August 26, 1891, the operation was performed at the Woman's Hospital. The woman made a slow but complete recovery and now, more than a year after the operation, is in perfect health.

Case 2.—Mrs. P., age 30, was referred to me by Dr. A. H. Burr, of this city, because of distressing pelvic trouble, accompanied with an enlargement in the left side. Her attacks of pain were periodic, and there was a history of one or two attacks of peritonitis. Specific infection was not altogether out of the question in the case. Laparotomy was agreed upon as the best method of getting at the real difficulty, and of removing it when it was revealed. She was taken to the Woman's Hospital, and the operation performed August 29, 1891. The incision revealed a cystic ovary on the right side as large as one's fist, with an enlarged and suppurating tube on the same side. The opposite tube was enlarged, suppurating and adherent. The recurrent peritonitis having been caused, without doubt, by leakage of the tube. The cyst of the right ovary had been conveyed by infection from its corresponding fallopian tube. The infection was undoubtedly gonorrhœal. The patient made an ideal recovery, and is now a perfectly well woman.

Case 3.—Mrs. H., age 35, was referred to me because of a tumor developing in the left side. It had been noticed for a year. It was accompanied with considerable pain. She was sent to the Woman's Hospital, and was operated upon September 14, 1891. An ovarian cystoma the size of a large cocoanut was removed from the left side, and the appendages of the right side, because of a small cyst of that ovary. The patient's recovery was perfect, without an untoward symptom.

Case 4.—Mrs. B., age 28, with large ovarian cyst, came to the Woman's Hospital for operation, and was operated upon Sept. 16, 1891. The multiple cysts contained about twenty pints of clear fluid, and after emptying it, it was easily tied off, no adhesions, no drainage. The woman recovered from the operation without symptoms, and was discharged cured, in four weeks. The removal of every small or medium sized cyst of the ovary carries its lesson, viz: the advisability of not waiting until they get large, produce pressure, and irritation, and consequently form adhesions. Early operations should be advised for all abdominal tumors.

Case 5.—Mrs. K., aged 32, was operated upon for large cystic ovaries. The symptoms were, pelvic pressure, and severe pain in ovarian region. The patient is the mother of two children, and the victim of one or more miscarriages. The uterus was retroverted. The operation was performed the latter part of September, 1891, at the Charity Hospital, Dr. Tanquary, house physician of the Post-Graduate School, assisting. The ovaries, one of which was as large as a goose egg, and the other as large as a hen's egg, were removed, with the tubes, which were large, inflamed, but patulous. The uterus was elevated, anteverted, and fixed to the abdominal wall. The patient made an ideal recovery, and was discharged from the hospital on the twenty-eighth day. She was seen several months later at the Post-Graduate clinic, and her symptoms had disappeared, the uterus was high in the pelvis and in its normal position.

Case 6.—Mrs. A., age 35, was operated upon at the Charity Hospital, October 14, 1891, for the removal of a small ovarian cyst. The uterus, which was in a retroverted position, was corrected, and ventral fixation was performed. No drainage necessary. The patient made a perfect recovery and left the hospital in four weeks.

Case 7.—Miss H., age 23, came to the Woman's Hospital for a severe distress in the right side in the ovarian region. Upon examination, I found a mass as large as an orange in the region of the right appendages, which gave an indistinct sense of fluctuation. Pyosalpynx, accompanied by retroversion of the uterus was the diagnosis. Laparotomy was performed October 27, 1892. I removed a diseased tube filled with pus from the right side. The other tube was apparently healthy, and left intact. The uterus was anteverted, the adhesions broken up, and the ventral fixation made. In enucleating the right tube, which was accomplished with great difficulty, I denuded about two square inches of the large bowel (the cæcum, I believe, with the vermiform appendix) of its serous coat, and while operating, about four ounces of pus flowed from a tear in the abscess sac into the peritoneal cavity. The cavity was carefully washed out with large quantities of sterilized water, and the denuded portion of the cæcum covered with an omental graft. Drainage tube was employed, which was removed in forty-eight hours. The patient recovered without rise of temperature, and without an untoward symptom. The specimen, on examination, proved to be an appendicitis which had produced a localized peritonitis, and at the time of extension had infected the fallopian tube. The opposite tube and ovary were left intact. The lady has since married, and is at present about five months in pregnancy.

Case 8.—Mrs. J., referred to me by Dr. Crawford, of Iriquoi, Ill., aged 37, four children, had a large cystoma of the left side. She was operated on October 17, 1891, at the Woman's Hospital. The case was uncomplicated, the tumor was removed without difficulty, and the recovery was without incident. Twenty pints of straw colored fluid was contained in the cysts.

Case 9.—Mrs. T., aged 37, mother of seven children, patient of Dr. Lodor, of this city, came to me for advice, and was referred to the Woman's Hospital for operation. She had suffered with severe pelvic pain for several years, and profuse and exhaustive menorrhagia. The pelvic trouble seemed to have a direct tendency to aggravate a grave mental disturbance which almost reached the dignity of a mania. The uterus was retroverted, and firmly adhered. Laparotomy was decided upon, and was performed October 19, 1891. Upon opening the abdomen I found disease of the appendages, and a cyst of the left ovary. Removed the cyst and appendages of both sides Anteverted the uterus and fixed it to the abdominal wall. Dr. Robinson's report on these specimens is as follows: "In this case the tubes are convoluted, and studded over with blisters or peritoneal sacs, containing cloudy fluid. The blistered tubes, Mr. Tait tells me, come from women who suffer much pain. The tubal wall had a typical hernia of one-half inch. The probe entered it from the tubal lumen, and the point shoved itself under the peritoneum. The pathology of these tubes is: first, spiral convolutions, which show reversion to fetal type; second, blisters on the tube; third, hernia of the tubal wall. All else is normal. The left ovary is normal, the right distinctly pathological."

Case 10.—A young lady, about 30 years of age, unmarried, was referred to me by Dr. Brinkerhoff, of this city, with a history of peritoneal inflammation, excessive pain, and a tumor in both broad ligaments. She was advised to have an operation, and a laparotomy was performed at the Woman's Hospital, October 26, 1891. The principal point about the operation was the difficulty of enucleating the tumor. Upon opening the abdominal cavity, there was found an agglutinated mass which appeared almost impossible to unravel, and over an hour was consumed in removing the tubes. Drainage was necessary. The recovery was ideal. Dr. Robinson's report on the pathology is as follows:

"This is a remarkable specimen. It shows tubes and ovaries in a marked œdematous state. The right ovary is dilated to the size of a plum in one of its cysts. Its peritoneum is covered by recent and old lymph shreds. The ovarian cyst lies right at the mouth of the fimbria and the infection was over the ovary. The tube is a still more remarkable specimen. It is thicker than the thumb. It is very œdematous. Its peritoneal covering shows lymph shreds, and old and recent peritonitis. The tubal walls are one-fourth inch thick in places. The tubal lumen is dilated so that it will admit the little finger in the left tube, and a lead pencil in the right. The tubes are both alike diseased, and show the distinct results of an infectious disease of long and slow progress. The fimbria and both tubes are fairly well destroyed. I think this is gonorrhœal infection."

Case 11.—Miss M., age 28, had a fatty tumor removed from right breast some time before. November 9, 1891, ovariotomy was performed for cysts of the ovary. No drainage. Patient recovered without interruption. Highest temperature, 100.2° on the sixth day.

Case 12. Ovariotomy. Recovery.—The following case, with its eventful history, I copy in full from my work on "Electricity in diseases of Women," page 147:

Miss A., age 28, was referred to me by Prof. W. H. Byford three years ago for galvanic treatment of a bleeding fibroid which measured five inches in depth. The uterus was partially retroverted and immovable. The hæmorrhage was confined to the menstrual period, however, materially lengthening the duration and quantity of the flow, until the patient was extremely anæmic and weak. Besides hæmorrhage, severe pain from pelvic pressure was complained of, and the patient was completely bedridden. She had been under the care of the physician who sent her to me for several months, and all medical treatment, including a systematic course of ergot, had been thoroughly pursued with a constant increase of symptoms.

The uterus measured five inches in depth and was a fair example of simple interstitial fibroid, developed uniformly throughout the tissues of the uterus, enlarging that organ to a smooth, oval, regular mass, resembling a four and one-half months pregnancy. It was slightly retroverted, the

axis occupying a line parallel with the axis of the body. From repeated inflammatory attacks it had become adherent and immovable.

Treatment was at once begun at the Woman's Hospital. During the early portion of the month the platinum electrode, covering the entire length of the uterine canal, was employed as the negative pole. Treatments given every other day. The last of the month the whole canal was covered once, by means of my concentration electrode five mm. in diameter and a surface of four square cm.

The effect of this was to check excessive menstruation and at the same time rapidly reduce the tumor. The treatment was continued for about four months. The growth reduced rapidly in size, the hæmorrhage became less and less severe at menstruation, and when the treatment had been employed for three months, the inflammatory exudate surrounding the uterus had become so thoroughly absorbed, that the organ was freely movable. The treatment was continued until the uterus was near its normal size and could be retained by means of a Hodge-Smith pessary. At this time I requested the patient to return to Prof. Byford and ask his opinion on the advisability of shortening the round ligaments. He examined her and expressed complete surprise at her changed condition, recommending the operation for which she had sought advice. It was accordingly performed, and since that time she has been perfectly free from the old symptoms.

In October, 1891, she again consulted me for a severe pain in her left side. Upon examination I found a small tumor about the size of an apple growing in the left ovarian region. Laparotomy was advised. In November, 1891, in the presence of the class of the Post-Graduate Medical School, assisted by Dr. Eibelberger, of Sioux City, Dr. A. R. Small, of this city, and the Woman's Hospital house staff, I opened the abdomen and removed a small ovarian cyst. Upon inspection the uterus was absolutely normal in size. Its external diameters, as nearly as could be judged, were three, by two, by one and one-half inches. It was held well forward by the round ligaments.

Case 13.—Miss B., age 36, was referred to me by Dr. A. R. Small, of Chicago, because of a large abdominal tumor. A laparotomy was performed at the Woman's Hospital November 12, 1891. A large cyst of the right broad ligament, or of the ovary developed into the ligament, was found, filled with about twenty pints of thick, transparent, gelatinous, semi-solid material, which had to be scooped out with the hand. The exterior of the cyst, the omentum and the intestines were covered with papillomatous growths. It was impossible to enucleate the cyst from the broad ligament. It was drawn into the abdominal wound and superabundant portions of the cyst removed, the remaining portion was stitched into the lower angle of the wound and filled with an iodoform drain. The patient made an uninterrupted recovery, and at this date, eighteen months afterward, is feeling well.

Case 14.—Mrs. S., age 52, seven children, referred to me by Dr. Eibelberger, of Sioux City, Ia. Diagnosis, multiple cystoma. Upon operation it was found that she had multiple cysts of both ovaries. The one on the right side was buried in the broad ligament and covered completely with four or five coils of adherent intestines, and in the centre of the mass was buried the cæcum. In enucleating and separating the cysts in order to remove them, I came upon an abscess of the vermiform appendix containing about two ounces of pus. I succeeded in enucleating the tumor, but in the process of separating it from the cæcum about two square inches of the peritoneal coat of the bowels adhered to it. The appendix was removed, and the denuded bowel covered with peritoneum. After washing the abdominal cavity thoroughly, the incision was closed without drainage. Recovery perfect.

Case 15.—Mrs. S., aged 31, three children, married nine years, referred to me by Dr. Garceau, of Chicago. Suffered excruciating pain in ovarian region. Has had three distinct discharges of pus from the uterus in the last three years.

December 16, 1881, laparotomy was performed and the tubes of both sides were, with great difficulty, enucleated. A glass drainage tube was employed for forty-eight hours. Highest temperature after the operation was 100 1.5° on the second day following. Patient left hospital the 25th day after operation. She is now practically well. The following is a result of a critical examination of the tubes by Dr. Robinson:

"These tubes show a double pyosalpynx The tubes show a perisalpingitis. Old inflammatory deposits exist on its outer peritoneal coat. The muscular walls are much thickened by inflammatory products. The mucous membrane is thickened and it is becoming smooth from old continued pressure of its fluid contents. The cilia are no doubt obliterated. The tubal lumen is dilated as wide as the little finger. The fimbriated extremity of the tubes are cemented to the ovary, and the tube opens into the ovary. The ovaries are cystic, they are cystic because the tubes carried infection into them and started disease. Many cystic ovaries arise from the fact that the tubes carry infection to them, therefore, cystic ovaries are often secondary to tubal diseases. We may say that ovarian cysts become infected with pus from 1st, the fallopian tubes; 2nd, from the intestines by diffusion of gasses, and 3rd, from the bladder. These tubes, in my estimation, are a typical example of gonorrhœal pyosalpynx. They show a slow, progressive infectious catarrhal process. This diseased process has advanced to the muscular walls of the tube and to its peritoneal covering. This gonorrhœal process has advanced into the broad ligament and caused the appearance of inflammatory products. The disease has progressed in all directions around the tube, but especially from its fimbriated end. Gonorrhœa is a slow, progressive, infectious catarrhal disease. It is not limited by space or time. Its home is the cylindrical epithelum. It seems to be checked by squamous epithelium, and that found in the peritoneum, and it does not progress well in connective tissue."

Case 16.—Removal of appendages of both sides and hæmatocele of ovary or tube. Drainage. Recovery.—Mrs. C., children eight, miscarriages one, youngest child 17 months old, was referred to me by Dr. Robt. Dodds for operation for some kind of pelvic tumor. She had menstruated twice since child was born, and had suffered very severely in pelvis for two or more months. I operated on December 26, at the Woman's Hospital, assisted by Drs. Dodds and Braunwarth. Upon opening the abdomen a quantity of black thick blood welled out. Upon examination I found that an hæmatocele about the size of a large orange had ruptured, which had its location posterior and to the right of the uterus and which had found firm attachment with the extremity of the right fallopian tube and the right ovary. The hæmatocele had well defined walls but the contents had been entirely expelled. I strongly suspect that it was a case of ectopic gestation. The walls of the hæmatocele with the ovary and tube were carefully enucleated, leaving a considerable raw surface which had to be drained. A glass drain was employed.

The case made an uninterrupted recovery, the highest temperature reached being 101° on the third day, and the patient left the hospital on the 28th day.

Case 17.—Removal of appendages of both sides for severe pain in ovarian region, much aggravation at menstruation. Diagnosis. Salpingitis.—Miss F. H., age 29, operation January 8, 1892, for removal of appendages. No drainage. She had severe pain in right side for a number of years. She had excessive pain at menstruation, which prevented her working. Recovery after operation uninterrupted. Dr. Robinson's report is as follows:

"The right tube is a typical specimen of a contorted, convoluted tube. It shows spiral or angular twisting. It is so bent as to show 'V' or 'S' shaped figures. It must be noted that the peritoneum does not dip down between the tubal convolutions, but it simply stretches from one knuckle of the tube to the other. The reason that the tube can coil up without drawing the peritoneum with it is because the peritoneum in the broad ligament is very loosely applied to the tubes. A year ago I called special attention to the idea that women with twisted tubes suffered at menstruation from premenstrual pain or tubal colic. This is a typical case to prove the correctness of the view. Convoluted tubes are simply a tendency to reversion of the fœtal tubes. In fœtal life the tubes are coiled up like a cork screw. It is mostly due to irregular involution of the tubes after labor, because the longitudinal muscular fibres of the tubes involute irregularly. This tube has an accessory osteum and an accessory tube which is, no doubt, one of Kobelt's tubes. Three little parovian cysts exist at the fimbriæ in the usual locations. Ovary normal.

The left tube is a remarkable example of stricture with dilatation on each side. The stricture is in the ampulla. It would admit only a small fine probe. The dilitation on each side of the stricture is about the size of a bean. This obstruction was, no doubt, another source of premenstrual pain, or tubal colic. The peritoneum did not dip down into the tubal convolutions at the stricture. There is a parovarian cyst. Ovary normal. Parovarian cysts exist in most women after sixteen years of age, as then the congestion of the puberty gives the Wolfian remnants of the parovian an

impulse to grow. The mucous membrane appears normal."

Case 18.—Removal of the appendages for catarrhal salpingitis. Recovery.—Mrs. J., age 34, two children, two miscarriages. Has been in miserable health since first miscarriage. Menstruated profusely, regularly, and with considerable pain. A constant latteral pelvic pain is present.

Operation.—Laparotomy with the removal of the appendages of both sides. Adhesions existed and careful enucleation was required; the oozing from the raw surfaces demanded a drainage tube. The tube was removed the next day. The highest temperature after the operation was the temperature of reaction occurring the second day, which was 102°. The following is Dr. F. B. Robinson's report on the microscopical appearance of the specimens:

"Both tubes present dilatations of their lumen in the ampullar part. The tubal wall is thinned. The left tube shows a double ostium. The peritoneum shows blisters where it covers the tube. The pathology of the tubes consists in the irregular, widely dilated lumen. At places the calibre of the tube is four to six times as large as normal. This gives the tube a saceulated form. The dilatation must have arisen from catarrhal disease or the accumulation of secretion. The mucous membrane appears normal at present. The fimbriæ look normal. The left mesosalpynx has four parovarian cysts. One can prove that they are parovarian by stripping the peritoneum from them, and also because there are no warts on the inside of the cysts. This excludes them from being cysts of the lumen. Both ovaries normal.

Case 19.—Removal of large, adherent, suppurating fallopian tubes. Recovery.—Miss P., age 29, was referred to me by Dr. Garceau, of Hyde Park, this city. She had been suffering for years with constant pelvic pains which were markedly aggravating at the menstrual period. She was a young lady who was obliged to earn her own living, and it was with greatest effort that she could keep about her work. Upon examination I found large indefinite swellings on either side of the uterus, and the case was diagnosed pyosalpynx.

January 6, 1892, assisted by Drs. Bacon and Braunwarth, I performed laparotomy, and with considerable difficulty succeeded in enucleating two large suppurating tubes with cystic ovaries. A glass drainage tube was left which was removed on the second day following. The highest temperature was on the second day, after the operation, reaching but 100 4-5°, afterward remaining normal. She made an ideal recovery, and left the hospital on the twenty-eighth day.

Case 20.—Removal of double pyosalpynx by laparotomy. Recovery.—Mrs. B. was referred to me by Dr. Joseph B. Bacon. She was 36 years of age, twice married, and had never borne children. There was a vague history of two miscarriages. For the two months before consulting me she had menstruated almost constantly. Has not been in the habit of suffering much at menstruation. Complains of a severe pelvic pain of an aggravating character and of constant duration. Upon examination distinct enlargement of both appendages was noticeable, and extreme tenderness of the parts existed.

January 28, 1892 assisted by Dr. Bacon and Dr. Braunwarth, I succeeded, with considerable difficulty in pulling out the large suppurating tubes with cystic ovaries. The patient made an ideal recovery.

The following is an interesting report on the specimen removed:

"The right tube presents a typical perisalpingitis. It is almost entirely covered by ancient remains of peritonitis. The perisalpingitis at one time must have been very severe, as the tube, even when practically recovered, was covered by woolly deposits of old lymph shreds. The tubal wall is irregular at its ampullar end. The tubal mucous membrane appears degenerated in the ampullar end. The lumen of the tube is dilated at its outer end. The fimbriæ are not healthy in appearance, and the tube possesses a double ostium. The inability of the deficient double ostium to grasp the ovary may explain her sterility. There is a small parovarian cyst. There also exists a predundulated parovarian cyst with a 1½ inch pedicle.

"The ovary has an enlarged graafian follicle which seems to have been gradually filled by successive deposits of blood layers. The cyst is as large as a plum.

"The left tube shows a beautiful specimen of tubal hernia. The ampulla is dilated. The walls thinned. The mesosalpynx was œdematous and the blood vessels over the tube in the peritoneum are much impeded. The fimbriæ and ovary show where they were once adherent from inflammation. The fimbriated extremity was fastened on to the ovary in one place so that it could not move. This again explains her sterility. One quarter of an inch from the abdominal ostium is a typical tubal hernia on the tube at the point most distant from the mesosalpynx. This is the usual location of hernia. Tubal hernia is where the mucous wall of the tube is separated and allows the mucous membrane to protrude against the peritoneum covering the tube. Tubal hernia may furnish an opportunity for tubal pregnancy, as the ovum may lodge in the hernia pocket and the cilia be unable to whip it forward to the uterus. These tubes present the appearance of having been attacked by some limited infectious disease which aided in their gradual dilatation and apparent degeneration of the mucous membrane. The disease was not like gonorrhœa, as that is an unlimited, progressive, infectious disease which especially effects the mucous membrane by continuous thickening and inflammatory deposits. Her sterility is explained by the inability of the fimbriæ to adapt themselves to the ripened ova, as one fimbria was fixed locally in an ovary, and could only get the ova that shed under its mouth. The other fimbria, owing to its double ostiæ and a band of tissue (tubal) between the ostii, could not secure an egg from the ovary. The left ovary is normal. This case shows that a woman's ovary varies in size about as much as the breast."

Case 21.—Hæmatoma of ovary and double pyosalpynx. Laparotomy and enucleation. Recovery.—This patient, unmarried, age 31, came to the Woman's Hospital, referred by her family physician, for the purpose of having an operation. She was in an extremely nervous state, hysterical, anæmic, and a great sufferer from headache and severe pelvic pain during menstruation. The menstrual flow was irregular and of long duration. Upon examination an extremely sensitive uterus was found, and on the left side was a large indistinctly defined mass. This was of a semi-fluctuating nature and extremely sensitive. On the opposite side was a tender ovary and tube.

On January 26, 1892, assisted by Drs. Bacon and Braunwarth, I performed laparotomy and removed by enucleation a large hæmatoma of the left ovary, and removed the appendages of both sides. A glass drainage tube was found necessary. The drainage tube was removed at the end of forty-eight hours. The patient recovered without symptoms, except suppuration of one or two of the abdominal stitches.

The patient was seen by me October 11, 1892, and she had been almost entirely free from all of the old symptoms, much to her gratification.

Case 22.—Removal of diseased appendages in a case of multiple fibroid of the uterus. Recovery.—Mrs. D., age 40, consulted me for excessive and painful menstruation, and a distressing bearing down pain. The woman had borne children, had had no miscarriage. Upon examination I found a uterus about the size of a cocoanut with several subperitoneal projections. On either side of the enlarged uterus could be felt large and tender masses which resembled suppurating tubes.

On February 2, 1892, assisted by Drs. Bacon and Braunwarth, I opened the abdomen and removed what proved to be suppurating tubes of either side. My diagnosis of multiple fibroid was confirmed. The uterus was not removed because it was small, the removal of the appendages being considered sufficient. The patient made an uninterrupted recovery with the exception of one or two stitch hole abscesses.

Four months after the operation the patient reported in a much improved condition although she had menstruated regularly.

Case 23.—Removal of appendages for pyosalpynx. Recovery. This patient, Mrs. H., age 28, one child, consulted me at the Woman's Hospital because of severe pelvic pains, much aggravated at menstruation, accompanied with universal sympathetic reflexes. Upon examination I found lateral pelvic enlargements which were plainly suppurating tubes. As she had gone through, for a period of three years, all the less radical treatment, I recommended laparotomy.

Accordingly, on February 27, 1892, assisted by Drs. Bacon and Braunwarth, I removed her diseased tubes and cystic ovaries. No drainage. The patient made an uninterrupted recovery.

Case 24.—Double oöphrectomy for multiple fibroids of the uterus. Recovery.—Miss Y., age 40, menstruation normal in quantity but excessively painful, consulted me at the Woman's Hospital in March last. I found on examination a multiple fibroid filling the pelvis, and wedged in in such a manner that I suspected that the severe lateral pain complained of was caused by the pressure of the enlarged uterus.

The woman had suffered for years with severe sacralgia, lumbar and bearing down pains.

March 22 1892, assisted by Drs. Bacon and Braunwarth, I removed the appendages. The woman convalesced without incident and is in comparative good health at this date.

Case 25.—Removal of appendages for pyosalpynx. Recovery.—Mrs. H., age 30, two children, consulted me for severe pelvic pain for which she could not get any relief. Upon examination I found tumors lateral to the uterus on either side. My diagnosis was pyosalpynx.

March 23, assisted by Drs. Bacon and Braunwarth, I removed two large pus tubes. No drainage. The recovery was uneventful. Two months following the operation, the patient was perfectly well.

Case 26.—Extra uterine pregnancy, removal. Recovery.—Mrs. H., age 25, married one year, consulted me for severe pain in her left side. She had been seen previously by my friend Dr. Doering, who referred her to the Woman's Hospital. She had suffered with pain in her left side for the last six weeks. There had been scanty menstruation the previous month. Tubal pregnancy was suspected, although not positively diagnosed. There was a tumor in the left side the size of a large orange, which was easily defined in a preliminary examination under ether.

April 2, assisted by Drs. Bacon and Braunwarth, I opened the abdomen and removed the tumor. Upon opening the peritoneum, several ounces of black thick blood flowed out. The tube was ruptured, and adhesions had occured in the broad ligament. The whole broad ligament was elevated and ligated with silk below the tumor, and the tumor cut away. No drainage was necessary, and the recovery was ideal. Following is a report of the macroscopical appearance of the specimen, as told by Dr. F. B. Robinson:

"Only one tube and ovary are present in the specimen. The other is all crumbled. The ovary is cystically degenerated, some cysts are as large as an inch across. The tube shows a very interesting object. In the outer end of the tube is a tumor ¾ of an inch long and ½ of an inch thick. It has membranes around it, but in the centre, it is a spongy blood clot. It is I think, an ectopic pregnancy. The tumor is hard and firm. The tumor gradually dilated the tube until the wall in the most distended portion had but little muscle left. The tubal plicæ were so stretched that they showed in distinct rows with creases between them. The fibriated end of the tube was simply hypertrophied, especially in its mucous membrane, and though inflammatory attempts had been made to close it, the attempts had not yet closed the end. From the unclosed condition of the fimbriated end arises a peculiar condition. The condition was, that on the anterior side of the mesosalpynx there was an organized blood cyst of a very distinct and hard character. Considerable force was necessary to detach it from the broad ligament. It appears that this blood clot came through the unclosed fimbriated end of the tube and organized itself on the anterior side of the broad ligament. Very likely at the time this hæmorrhage occurred it caused the death of the embryo in the tube. The pain complained of in this region was likely the growing tumor. I could see no change in the uterine end of the tube. This case illustrates the assertion that I have frequently made to the effect that all ectopic pregnancies do not require an operation. Many get well by the fœtus dying in the tube. Others get well by the rupture of the tube and the hæmorrhage kills the fœtus, but the hæmorrhage stops before it has done much harm. Others get well by tubal abortion and the fœtus is absorbed. If the rupture of the tube occurs between the mesosalpynx the elasticity of the broad ligament connective tissue checks hæmorrhage. No doubt most tubal pregnancies rupture in the part of the tube uncovered by the peritoneum because it is the direction of the least resistance. This tube was also interesting as it contained three extra fimbriated tubes springing from the mesosalpynx. This is especially interesting as it shows clearly that the origin of these extra fimbriated tubes are distal remains of the parovarian. They are simply Kobelt's tubes tufted at the end. They are fimbriated Kobelt's tubes, but they, curiously, are so much like the fimbriated end of the fallopian tube that some call them accessory fallopian tubes; but they are scarcely even hollow. The reason I could see that these Kobelt fimbriated tubes sprung from the mesosalpynx is that there was a broad ligment cyst in this specimen ¾ of an inch in diameter, and from the most distended part of this parovarian cyst spring the accessory fimbriated tubes. They were entirely away from the fallopian tube. The method of knowing a broad ligament cyst is very simple. One can peal it out from its bed in the broad ligament. It is distinctly separate from the broad ligament. The cyst contained a jelly like fluid with some cheezy matter.

Case 27.—Mrs. B., colored, aged 31, one child, consulted me at the Woman's Hospital Dispensary. She complained of pain which had been present since the birth of her child, and from which she had not been able to get relief after passing through the hands of a number of physicians. Pain more severe in right ovarian region. Has severe backache, her dysmenorrhœa continuing throughout the flow. Upon examination, I found marked tenderness in the region of the appendages, and a tumefaction in the right side.

April 12, 1892, I performed laparotomy and removed the appendages of both sides. The tumor of the right side was a markedly enlarged ovary which was subsequently found to contain pus. The tubes of both sides were infected. From the apparently progressive nature of the infection it was supposed to be of specific origin. No drainage was employed, and the recovery was prompt and ideal. Patient left the hospital June 2.

Case 28.—Mrs. McL., age 31, two children, no miscarriages. I was called to see her by her family physician, Dr. McGowan, of Chicago, because of severe and unaccountable attacks of pelvic pain through the ovarian regions, which had been troubling her for some time. The pain was of such a severe type that chloroform to the point of narcosis was the only remedy which would relieve it. She was of an extremely nervous temperament, and manifested strong hysterical tendencies. I found a deeply lacerated cervix, and what I diagnosed as probable tubal infection with ovarian complication.

She was taken to the Woman's Hospital and the cervix was operated upon. While at the hospital she had several attacks of pain and was obliged to resort to chloroform for relief. While under ether for the cervix operation, I examined the pelvis, but could find no indication of marked pathological changes.

May 3, 1892, I performed laparotomy and removed the appendages. She recovered without abnormal temperature, and left the hospital on the twenty-eighth day. While she recovered from the operation, her symptoms were not materially changed. The following is Dr. Robinson's report on the appendages which were removed:

"Mrs. McL., May 3, 1892. Left ovary normal except a bean size of graafian follicle filled with a hard blood coagulation. Left tube was very much atrophied, mucous membrane healthy but shrunken, muscular wall much shrunken. The tube was very spiral. It was contorted, convoluted, and lying curled up in a bed of healthy connective tissue entirely loose from the peritoneum. The spiral condition of the tube explained the tubal colic, or premenstrual pain. There was an accessory fimbriated tube ½ inch long. It was simply a tube of Kobelt. A few parovarian cysts of duck-shot size were found. The right tube and ovary were about an exact type of the left, only they were far more atrophied and the tube far more convoluted. An accessory fimbriated tube of Kobelt existed. The tubal lumen was extremely small. The tubes were much superinvoluted, and that accounts for the steadily decreasing menstrual flow."

Case 29.—Miss X., age 19, referred to me by Dr. ——, of Miles, Ia., for pelvic distress, amenorrhœa, and pelvic enlargement. Examination under ether revealed a tumor about the size of a goose egg in the left ovarian region. Laparotomy was performed May 4 at the Woman's Hospital. The tumor proved to be an ovarian cyst. The opposite ovary being cystic, it also was removed. The patient made a perfect recovery, and left the hospital June 8, 1892.

Case 30.—Mrs. Y., age 22, no children or miscarriages, consulted me about April 1, 1892. Menstruation irregular, occurring in five, six, seven, eight or nine weeks. Complains of pain in back and lower part of abdomen. For the last year has had a great deal of bearing down pain. Severe pain in both ovarian regions. Has had a severe bronchial cough for a year. Upon examination I found an enlarged uterus about the size of a two months pregnant uterus. The tumor was soft, and the cervix large, elongated and soft. The appendages, large and sensitive, were easily felt. The patient had not menstruated for three weeks. Being suspicious of pregnancy, I ordered her to bed, and while building her up, decided to employ no active treatment until the next menstruation appeared. Menstruation appeared again and was very profuse, and lasted more than a week. This seemed to clear up the matter of pregnancy, and make a certain diagnosis of rapidly growing fibroid with diseased appendages. The diseased appendages, together with the age of the patient, decided me in favor of oöphorectomy

and against electricity. May 6, the laparotomy was performed at the Woman's Hospital. Both tubes were distended, presenting the appearance of typical non-adherent pus tubes. The uterus was about the size of a three months gravid uterus. The appendages were removed. The recovery from the operation was without incident.

Case 31.—Mrs. O. S., age 23, one child five years old, came to me for examination April 27, 1892. She had a large solid tumor filling the lower abdomen to three inches above the umbilicus. Upon careful bimanual manipulation, it was diagnosed as of ovarian origin. Laparotomy was performed at the Woman's Hospital, May 18, 1892. The growth, a large, solid ovarian tumor, after separation from the several adhesions, was removed without difficulty. No drainage was necessary, and the patient recovered without incident, and left the hospital in twenty-eight days.

Case 32.—Miss L., age 15, was referred to me because of pelvic trouble associated with epilepsy. The patient began to have "fits" at the time of puberty, about two years ago. While the attacks were not always coincidental with menstruation, they were much more liable to occur at that time, and were more severe in character. Upon examination of the pelvic organs, I found enlarged appendages and excessive tenderness to pressure over the right ovary. Laparotomy was recommended, first, on grounds of diseased appendages, second, because of epilepsy. The patient was therefore operated upon at the Charity Hospital, May 21, 1892. The tubes were practically normal, although hyperæmic, both ovaries were covered with small cysts, and the right contained an abscess containing a couple of drachms of pus. The girl recovered from the operation without abnormal temperature, and was ready to leave the hospital in four weeks. It is too early to make any forecast as to what the outcome of the operation on the epilepsy will be. The removal of the appendages was justified by the pathological condition found.

Case 33.—Mrs. R., age 28, consulted me in March or April, 1892. Puberty at 15 years of age, been married five years, has one child four years of age and has had two miscarriages, the last one two years ago. Menstruation is painful but not profuse, lasting about five days. The amount of the flow has decreased in the last two years. Severe pain in pelvis, localized on left side and extends down to the left limb. Upon pelvic examination a growth was discovered on the left side in the ovarian region. The tumor was movable and painful, and the appendages of the right side were tender to pressure and appeared enlarged. Endometritis existed, with a semipurulent discharge from the uterine canal. The patient went to the Woman's Hospital, and May 25 I curetted and packed the uterus. June 1 I did a laparotomy and removed a small ovarian tumor from the left side and a cystic ovary and tube from the right side. Examination of the specimen is given in the appended report. The patient made an uninterrupted recovery with the exception of a small stitch hole abscess which developed at the end of two weeks. Three months after the operation the patient declares that she is perfectly well.

Dr. Robinson's Report.—"The left ovary has a dermoid cyst about the size of a turkey egg. It contained hair and sebaceous matter. A curious feature about this dermoid cyst was that it had apparently extended its sebaceous matter into several graafian follicles and in this manner it become multilocular. The whole wall of the ovary was so stretched as to part a portion of the wall of the dermoid cyst. The central portion of the walls of the ovarian follicles was atrophied, and thus a large round hole opened from the dermoid cyst into the graafian follicles. Through this aperature the sebaceous matter, hair (skin appendages), etc., had extended. The hairs were some $\frac{1}{2}$ inch long and similar in structure to those on the scalp. The wall of the dermoid was very tough and leathery. Its wall was not uniform in thickness. The inside of the dermoid and follicle cysts were of a shining and glistening appearance. The rapid growth of the dermoid had involved in its wall nearly every ovarian follicle. On the wall of the dermoid, which was a part of the ovary, was an old graafian follicle the size of a plum full, of hard, solid blood coagulation. It is somewhat rare to find the pultaceous matter in a dermoid cyst usurping the surrounding graafian follicles, by penetrating the walls of the ovarian follicles. But it is probably explained by the rapid growth of the dermoid with its accumulating contents. A dermoid tumor is a cyst containing skin or mucous membrane. It may have the appendages of the mucous membrane or skin, as hair, teeth, glands, nails, nipples, etc. Dermoids are remnants of past life and development, and are apt to occur where apertures have existed in the body, as at the pharynx (old gill slits). They also occur at the rectum (remains of the post anal gut). They also occur in the ovary, but this is explained by the idea that the germinal epithelium of the ovary arises from the peritoneum. Dermoids are generally slow in growth.

"The left tube was spirally contorted. It was convoluted and twisted. The peritoneum did not dip down into the convolution but stretched across them. There was extensive healthy connective tissue surrounding the tube. The tubes lay curled up in a healthy connective tissue. The spiral angulations of the tube accounted for painful menstruations. The constriction in spiral tubes causes tubal colic, or premenstrual pain. The muscular wall of the tube appeared normal. The mucous membrane was healthy. The parovarian had a few dilated cysts.

"The right ovary was normal, except that a graafian follicle was found about the size of a plum, filled with a hard solid blood clot. The right tube was spirally convoluted, but otherwise healthy. Every part of the tube, mucous membrane, muscular wall, connective tissue and peritoneum was normal except its excessive convolutions.

Case 34.—Mrs. M. M. came to the Woman's Hospital for treatment about June 1, 1892. Age 21, been married one and one-half years, has had no children and no miscarriages. Has had excessive and painful menstruation since last Christmas. Has severe pelvic pain in left ovarian region, and has an excessive leucorrhœa. Upon bimanual manipulation the uterus is immovable, and unyielding masses are felt on either side of the uterus—a case which formally would have been pronounced general cellulitis—the abnormal condition seemed so universal that I was rather led against my experience and better judgment to believe here at last we had a case of genuine classical cellulitis, which we used to diagnose and describe so accurately in prelaparotomy days. I was doomed to disappointment, however (as I have always been under like circumstances), when I opened the abdomen and unravelled from a mass of exudate a couple of typical pus tubes, which had been the cause of all the exudate. Drainage was necessary, and the woman made an uninterrupted recovery.

Case 35.—Mrs. K., age 31, entered the Charity Hospital Dispensary about May 1, 1892. She had suffered much for a number of years with severe pelvic pain and recurrent attacks of peritonitis. Her history was clear, indicating pyosalpynx with peritoneal extension. I performed laparotomy at the Charity Hospital, assisted by Dr. Dodds, and found two large adherent distended tubes, which were enucleated with difficulty. The patient made a rapid recovery.

Case 36.—Mrs. B., aged 40, was sent to the Charity Hospital to be operated upon for pelvic abscess. Upon examination a large boggy semi-fluctuating mass was found on the left side, and a well-defined enlargement over the broad ligament. The patient had a history of specific infection—a drunken, licentious husband, and repeated miscarriages with one or two attacks of peritonitis. Her former attendant had been waiting for the abscess to point so that he might open it, a common but obsolete practice, and one ending in unsatisfactory results. I at once selected laparotomy as the proper remedy for the case, and applied it. The left tube was very large, and buried in exudate, covered with adherent intestines and omentum. It was carefully enucleated and was filled with free pus. The left tube was also suppurating and was removed in the same manner as the first.

This case teaches us the same lesson that all of these cases teach, viz: that almost invariably pelvic abscesses are of tubal origin; that tubal abscesses are almost invariably bilateral; that by opening one through the vagina or elsewhere, one only temporizes and leaves a second abscess uncared for, which will be sure to give rise to a second train of symptoms; finally, that the true way to treat pelvic suppurations is by abdominal section and complete removal of all infected tissues.

Case 37.—The exact date of this operation has been lost. Double oophorectomy was performed on a young lady about 25 years of age, for the purpose of modifying epileptic attacks which made their appearance with puberty, and which were much aggravated by menstruation. The operation was performed at the Woman's Hospital. No drainage, primary recovery without incident. I was unable to find this patient and therefore am unable to make a report as to more remote results.

A PROJECT having for its purpose the creation of a department of public health is receiving attention in England. It will be in charge of a responsible minister.

LITHÆMIA; ITS TREATMENT.

Read before the Harvard Medical Society, October, 1, 1892.

BY REYNOLD W. WILCOX, M.A., M.D., LL.D.

Professor of Clinical Medicine at the New York Post-Graduate Medical School and Hospital; Assistant Visiting Physician to Bellevue Hospital; Fellow of the American and of the New York Academy of Medicine; Member of the Harvard Medical Society, etc.

At the present time there is no necessity for an apology for taking up the subject of lithæmia. With the greater acquisition of wealth, and the luxurious habits of living incident thereto, with increased competition in the mercantile and professional world, we meet, more and more frequently, with cases which illustrate the symptom-complex known as lithæmia. The subject is by no means a new one, although with greater and more accurate knowledge of physiological chemistry, with more careful and complete physical examination, we are able to define more clearly the processes which result in this condition, and with even more certitude, proceed to its cure.

Not long after the report of that gun was heard at Lexington, which echoed around the world, Scheele, the Swedish chemist, announced that uric acid was a normal constituent of the urine. From that time on, our British cousins, with the exception of a very small party who still believe in the neurosal theory of gout, have studied this crystal, and built up around it a system of medicine. While their studies have resulted in throwing a great deal of light on the subject of gout, they have been partial studies, and have not resulted in bringing the subject to that degree of simplicity that the present state of medical science demands. While they have deified the uric acid crystal, they have by no means left the subject in such a condition that we, in this country, can utilize their researches.

The subject of lithæmia is a broad one; its symptomatology presents a large field for study. While we may have a lithuria without a lithæmia, we can by no means have lithæmia without lithuria. We may, perhaps, appreciate that gout is but a portion of the broad field covered by lithæmia, or we may say that lithæmia is latent or modified gout, or a forerunner of gout; but for our present purpose we prefer to call it the uric acid diathesis, uric-acidæmia, or a tendency to the development of uric acid. It is to be contrasted with gout, in that lithæmia comes on like a thief in the night, whereas gout is sudden, sharp, and easy of diagnosis. The underlying principle of lithæmia is deficient oxidation in the body, an imperfect tissue metabolism.

The types of lithæmia are perhaps best understood if we follow Satterthwaite's clearly cut classification —the hepatic type, dyspepsia; the neurotic form, neurasthenia; the articular type, gout. In gout, we have sodium bi-urate in the interior tissues of the body, gout differing from gravel in that in the latter, uric acid is in the free state in the urine. In gout the error is this side of the kidneys; in gravel, the error is the other side. And right here we may as well say that from the results of treatment, and from a study of a considerable number of cases, we are inclined to believe that oxaluria, so-called, is merely aggravated lithæmia.

The reason for the appearance of uric acid in the blood, and secondarily in the urine, may be threefold: 1. An increased production from high living, immoderate use of animal foods, a diet rich in albuminoids, or even in fatty matter, although the latter is not directly an agent; 2. Imperfect oxidation of the nitrogenous foods, dependent perhaps upon the neurotic temperament, upon too little exercise, upon the use of alcohol, especially sweet wines, upon the use of "heady" wine and beer, upon the moderate and continuous use of tobacco, highly seasoned dishes, impaired glycogenic activity of the liver, or the supply of oxygen being relatively insufficient; 3. Impaired elimination by the kidneys. An increase in the proportion of acids and acid salts in the blood tends to retain uric acid in it, hence, the acidity of the blood is high in winter, but lower in summer, because of the loss of acids in the summer in perspiration; hence, uric acid is stored up in winter, and excreted in summer, and this is presumably the explanation of why lithæmia is more prevalent in the spring-time, even if it is customary for a winter vacation to be taken. Again, in vigorous nutrition in adult life, acidity rules high. In coming to a clear conception of the importance of uric acid, it is always well to remember Haig's law, that all substances which form soluble compounds with uric acid, or increase its solubility in the blood, increase its excretion; while all substances which form insoluble compounds with it, or diminish its solubility in the blood, diminish excretion. The excess of uric acid is stored up in the tissues; it is manufactured in the spleen, and that is the most important reservoir—in the nervous system, in the liver, and in the connective tissue. In only one disease, so far as I know—leucocythæmia—does uric acid exist uncombined in the body.

The symptomatology of lithæmia is extensive. The patients are never sick, and they are never well; they may be obese and sluggish, or thin and wiry; the conjunctivæ are usually yellowish and muddy, particularly in the first type; the lips are œdematous and pale; the gums and mucous membrane pallid; the tongue is coated, especially in the morning; there is frequently a metallic taste in the mouth, and impaired or perverted appetite. We have all forms of indigestion—heartburn, retching, dyspepsia soon after the indigestion of food if there is failure of digestion of the albuminoids, or at a later period, if due to failure of digestion of starches, sugars, or fats. There is tension and fullness in the epigastric region, a tumid abdomen, acid eructations, gaseous distension, discomfort after eating, and irregularity of the bowels, with a tendency towards constipation. Sometimes with marked abdominal pain, we have diarrhœa, with frothy, ill-smelling stools; hæmorrhoids are common; blood is frequently passed independently of hæmorrhoids; we have a good deal of itching about the fundament, even eczema; the liver is enlarged and tender.

The circulatory symptoms are quite characteristic. The patient complains of palpitation, of precordial anxiety, the pulse is hard, narrow, and tense, usually slow, but in anæmic and debilitated individuals, it may be quick; the tension varies directly as the uric acid in the blood, which probably acts upon the vasomotor nerves, contracting the arterioles all over the body, and so raises arterial tension. In Raynaud's disease, in which the diagnosis, to be absolutely established, must exclude organic disease of the blood vessels, we have a beautiful example of local spasm. It is fair to presume that some of these cases may have an underlying uric-acidæmia. In a lesser degree, we have cold hands and feet, frequently

so cold that they cannot be kept warm short of immersion in hot water.

The respiratory symptoms are not numerous. Generally, however, the respirations are accelerated, and the patient suffers from a dry, unproductive, and irritative cough. Quite characteristic is a patchy congestion over the mucous membrane of the larynx and pharynx, which gives rise to an explosive cough. Sir Andrew Clark has mentioned "arthritic hæmoptysis," of which I have seen but one illustration. On the other hand, it must be remembered that chronic bronchitis, especially complicated by emphysæma, and other diseases interferring with respiration, tend to cause lithæmia.

The integumentary symptoms are usually sallowness, or an abnormal redness of complexion; the skin is dry, itchy, and muddy. There is quite frequently a papular or anomalous eruption, even eczema of the genitals; localized œdema is not uncommon. A quite characteristic condition is a slight cutaneous anæsthesia, or a marked paræsthesia.

The urinary symptoms usually attract attention. They are, a weight about the kidneys, increased usually on exertion; the micturition is frequent and burning, the urine scalds the urethra, and may even produce distinct pain.

Among the sensory sphere, we have headaches, which extend over considerable periods of time, usually a diffused frontal headache, at times, occipital; frequently migraine is a marked and an obstinate condition. Of the neuralgic attacks, those involving the intercostal nerves are more frequent. The patient suffers much from vertigo, due, according to Buzzard, to an affection of the bulb near the origin of the auditory nerve. He complains of lassitude, of weariness, and disinclination to bodily exertion; his limbs ache; frequently there is numbness and irregular areas of cold skin.

The vaso-motor conditions give rise to peculiar symptoms. Broadbent mentions a fugitive aphasia, amblyopia or hemiopia, which he explained by stasis or ischæmia in certain vascular areas, and thinks this is due to uric acid. The patients have great irritability of temper, sometimes slight aphasia, forgetful of names more particularly. Bastain calls attention to a slight lowering of the functional activity of the auditory centre, which again produces a slight amnesia with forgetfulness of names of persons and things, the centre not being sufficiently active to respond to some volitional and associational incitations. The patients are peevish, they magnify little ills, they have delusional mental conditions, depression of spirits, mental inertia, mental irritability, and with this depression, hypochondriasis. They are excitable, and yet they are melancholic; they are disinclined for mental exercise; they have great sensitiveness to sounds and light; certain odors become remarkably repugnant. Other patients are drowsy and sleepy, have disturbances of vision, and noises in their ears. Among the symptoms in the locomotory sphere, we have cramps in the calfs of the legs, pricking in the joints—and here, we are on the border line of gout.

The urinology is quite important. The formation of uric acid in its relation to urea, according to long continued observations of Haig, is one to thirty-three. If, however, there is less uric acid excreted, then we have it stored up in the body, and we can get our symptoms of lithæmia. If, however, more than this proportion is excreted, then it is not from increased formation, as a general rule, but it is from some which has been previously formed, and not excreted. The urine is scanty; if uric acid is in excess in the urine, it is also in excess in the blood, and this, by bringing about contraction of the arterioles of the kidney, easily diminishes the out-flow of water. Its color is usually high, and the specific gravity is increased. According to Dana, there is a greater frequency of heavy urines in the irritative and diathetic forms of neurasthenia. The inherent tendency of the urine is to spontaneous precipitation of uric acid. All acid urines, if kept aseptic, deposit uric acid sooner or later, usually beginning with the twenty-four hours, but it may be delayed a week or longer. Even with lessened excretion of uric acid, the acidity is increased, and this increase continues from day to day, and finally, a layer of urates and uric acid will be deposited, or uric acid will be thrown down alone. In oxaluria the specific gravity may be normal, but the urine is usually pale and greenish, depositing crystals of oxalate of lime, especially in the night urine. At times, however, the phosphates and calcic oxalate are in excess, especially in neurasthenic urine; we may often find red blood globules, and sometimes a trace of albumin.

The salient facts in connection with the excretion of uric acid are, that it is inversely as the acidity of the urine; that it exists in the urine in combination with alkaline bases, and that it requires for solution fifteen hundred parts of warm water. An important fact in therapeutics is the observation of Roberts, that the hourly excretion of uric acid is three times greater than the "alkaline tide," which is from 6 or 7 A.M. to noon or 1 P.M. In normal urine, according to recent investigations of Roberts, uric acid exists as a quadra-urate (H_3UMHU). Uric acid is normally a bibasic acid having the formula, $H_2(C_5H_2N_4O_3)$ or H_2U. The acid urates are very stable; in gout, as I said before, we have the sodium bi-urate. The neutral urates, M_2U, cannot exist in the presence of carbonates, and therefore, have no part in the life history of uric acid. An amorphous urate deposit is never thrown down in a neutral or alkaline urine. In liquids containing an alkaline carbonate, for instance, blood serum, uric acid passes into solution as an alkaline urate, and is voided as a quadra-urate; in gout, from the deficient action of the kidneys, or the excessive introduction of urates, the quadra-urate lingers, and circulates in a medium rich in sodium carbonate, and so becomes a bi-urate, which is less soluble, and which exists at first as a gelatinous modification, and finally, passes into a crystalline form, and is precipitated. These crystals may be so fine as to pass through a filter.

There is a clinical relationship of headache to gout. The urine excreted from the kidney during the headache contains an excess of uric acid, which excess may be brought about by the administration of an alkali. If this increased excretion is checked by an acid, all the symptoms disappear, but prickling pain is felt about the joints. All substances which diminish the solubility of uric acid, and therefore diminish the excretion, increase the prickling pains in the joints and fibrous structures, and here it should be noticed, that a difference of one or two grains a day in the amount of uric acid thrown into the circulation, may make, and probably will make, a world of difference in the symptoms.

The results of lithæmia can be anatomically demonstrated. Independent of gouty tophi, and the deposit in serous membrane or fibrous structures of sodium bi-urate, we can have as a direct result, chronic catarrhal hepatitis, fibrous degeneration of the kidneys, cardiac hypertrophy, periarteritis, and especially of the small arteries, and a fibrous or white arcus senilis.

The prognosis is ordinarily a favorable one, because if the disease is taken in hand before anatomical changes have taken place, it is usually comparatively easy to bring about a change in the habits of the patient, and with proper hygienic, dietetic and medicinal treatment, to relieve the patient of the symptoms, and bring about a cure.

In discussing the subject of treatment, we should separate clearly and distinctly the first two classes mentioned above. The obese, sluggish patients, who have marked dyspeptic symptoms, require an entirely different treatment from the wiry, thin and nervous neurasthenic patient. Diet is important, and a diet determined by watching the stomach and intestines carefully. Contrary to our English cousins, we believe that animal food is preferable, because it is simply a vegetable food which has passed through certain processes, and become flesh; in other words, a part of the process of making this fit for food is done for us by another animal—it has a higher potential energy. I believe with A. R. Smith, that the limitation or exclusion of proteid food is a mistake, for the habit of excreting uric acid is like a spendthrift, and is not to be cured by withholding money, but by teaching him better habits. Since a meat diet and fat yield the largest amount of working power for the smallest amount of oxygen used in the metabolic transformation of food-stuffs, and in assimilation, and since vegetable food-stuffs contain plenty of nitrogen, but a large excess of C HO as well, so a vegetable diet overtaxes the oxygenating power of the system (Porter). Therefore I believe a meat diet is advisable, notwithstanding the fact that there is less production of uric acid with a vegetable diet. But the uric acid that we meet with in the blood is not so much due to increased formation, as to failure of excretion. In gout, following Ebstein, it may be necessary to limit the quantity of proteids, since from a larger proportion of urates comes the deposition of sodium bi-urate, but we should remember that gouty patients indeed cannot digest sugar and starch, although the latter with fats have no direct influence on the production of uric acid. Although it is a fact that meat increases acidity, due to its salts, yet this can be readily counteracted, as will be explained below. We prescribe, then, lean meat, which is easily digested, but we may add succulent green vegetables, when flatulence, headache and drowsiness do not come on one or two hours after eating. If immediately, weight and pain and heart-burn with acid and gaseous eructations, are experienced, and these symptoms are persistent, we can diminish the butcher's meat, and use instead the white meat of fowl, sweet-breads or fish. Fatty substances should be used with care, as they give rise to butyric acid fermentation, and they also coat the meat fibre. We should also avoid fried meats of all kinds, and all made-over dishes. Frequently it is necessary to begin the treatment with skimmed milk, then add eggs without the yolk, which is oily, and contains lecithin; chopped beef and hot water are frequently serviceable. Later, we can use mutton and white meat of fowl, but with great care, because to some, fowl is a poison. Fish, as mentioned above, is useful here; green vegetables and fruits are generally well borne. In anæmic, thin individuals, and in those of the first class, when the digestion is well established, malt, cod-liver oil and cream are very serviceable. All lithæmics should avoid spices, smoked and salted meats and fish, pork, cheese, oily and farinaceous compounds, pastry and rich gravies, and tea. Coffee can be used in moderation. Although spirits have no effect upon the solubility of the sodium bi-urate, yet as alcohol diverts inspired oxygen from albuminous compounds, which, accordingly, instead of being converted into urea, remain at a lower point of oxidation, as uric acid, therefore it should be used legitimately, either as spirits without sugar, and well diluted, or as Schreiber's sugarless, dietetic red wines (Loeb). Meat and wine together may interfere with the alkaline tide the next day, when neither separately will do this. Therefore, do not combine them. Garrod very aptly puts it, that the blood becomes loaded with uric acid, not from increased formation, but from imperfect excretion; therefore, large quantities of fluid should be used, which dilute the urine, diminish the irritation of the kidneys and urinary passages, retain solid matters in general in solution, and wash precipitates from the kidneys and bladder. Little fluid, however, should be taken with meals, so we may not dilute the gastric fluid and distend the stomach, thus interfering with its motility; and that little fluid which is taken should, in the earlier stages of treatment, usually contain carbonic acid, which is a healthy stimulant to the stomach. The requirement as to fluid is best filled by a mineral water, which must be alkaline, which most properly contains lithia, and of the mineral waters, my experience has been with the Londonderry lithia water, used to the extent of eight or ten glasses daily. If taken at meals, it is to be taken carbonated; if used between meals, it is to be "still." The use of this water lowers the percentage of urates markedly, and it dilutes the blood.

The hygienic treatment has for its most important division, the prophylactic. My own prescription, and one that I have found the greatest success in, and one that I am sure has obviated much subsequent suffering, is the constant use of the lithia water, and more particularly in the spring of the year. The meals should be regular, and as meals act as alkalizers and diluents, they should be frequent. Thorough mastication is important; exercise is valuable in plethoric persons because it uses up oily compounds in the system, and should be taken in the open air—horseback, rowing. Nervous persons, however, require rest, according to Gray. The seaside is usually more suitable for them than the mountains, and sunlight should be insisted upon. Sleep must be secured, and if possible, without the use of drugs. Ralfe advises the use of cold water pads to the abdomen at night.

In the medicinal treatment, we must bear in mind the two classes mentioned above, and for plethoric and dyspeptic individuals, I believe at the outset that Carlsbad sprudel salts, one to two drachms in half a glass of cold water, taken before breakfast, should be persevered in until two or three stools are secured each day; then stimulate the liver with podophyllin, ⅛ gr., euonymin ¼ gr., iridin ¼ gr., adding

sufficient aloin, ¼ to ½ gr., to secure a free movement. This is best given in the tablet form, once or twice daily. Frequently in these cases, the Carlsbad salt is not well borne; it irritates the intestine, and gives rise to a good deal of pain. In these cases, Villabracas water, from a sherry to a claret glass full will be usually sufficient. The neurasthenic and anæmic cases, those who suffer from insomnia and melancholia, must usually have their undue nervous excitement allayed, either by giving ten or fifteen grains of bromide of sodium, two or three times daily in Vichy, or, what I have found is better, phenacetin in from eight to twelve grain doses. For these, a gentle laxative only must be used, such as the compound rhubarb pill at night, or a claret glass of Rubinat-Condal in the morning. Some authorities believe it better to clear out the uric acid by the salicylates, alkalies, or the phosphate of soda, before you markedly alter the diet, but I do not believe this is the best way of commencing the treatment. The drugs which increase the excretion of uric acid are the alkalies, especially lithia, which has a low equivalent and therefore a greater neutralizing power, weight for weight, than any of the others. It is effective, therefore, in small quantities, and less demand is made upon the kidneys in excretion. Although it markedly diminishes the acidity of the urine, unlike all other alkalies, it reduces arterial tension, quickens the pulse, and produces diuresis. Used at bed-time, it clears up the habitual morning headache and bad feelings. For this purpose, eight to twelve ounces of the plain water will prolong the morning alkaline tide; in fact, with the Londonderry lithia water, which is a combination of alkalies with the carbonate of lithia made by nature, one can readily keep the urine faintly acid except after meals, when it should be slightly alkaline, and thus secure free elimination of the uric acid. If potash is used for this purpose, it is necessary to take a large dose, forty to sixty grains of the citrate, in three or four ounces of water, and generally a second dose at midnight, to secure a diminished acidity of the urine until eight o'clock of the following morning. It is well to remember that large doses of potash salts continued over considerable periods of time will produce structural degeneration of the kidneys. Acetate of potash has a more rapid, but less enduring action; the carbonates of lime or magnesia have but little effect. Salicylic acid with uric acid forms salicyluric acid, which is more soluble in water than any of the other salts of uric acid, and also much more soluble in the slightly acid fluids. If there is fever, or the alkalinity is low, this may be satisfactory. The necessary dose is from five to fifteen grains after meals, three times a day. A considerable distance after the acid comes salicin, and of still less value is salol, although in oxaluria it has been of signal advantage; chiefly, perhaps, in hepatic cases where the ptomaines are in abundance. A word of caution is necessary. The salicylates and alkalies interfere with each other's action, and when they are about equally balanced, diminished excretion is the result. Next in value to the use of lithia comes phosphate of soda, from one to six drachms. Phosphate of soda, $Na_2 H P O_4$, should be carefully distinguished from the acid phosphate of soda, $Na H_2 P O_4$, which, for this purpose, has no value. The phosphate of soda does not excite diarrhœa even in large doses. A greater part is excreted by the urine; it will hold in solution more uric acid than any other salts; it does not make the urine alkaline; it excites elimination from glandular structures, as the liver, for instance, and does not act by osmosis. It should always be given with an alkali, as the bicarbonate of soda (Haig), because it only acts in an alkaline medium. Acids, or salts of mineral acids, as sulphates, convert it into acid phosphate of soda, which is useless. This remedy is exceedingly useful where the alkalinity is high, where headaches are a marked symptom, where we have a high tension pulse, and much mental depression. Piperazin is not a powerful excitant; it cannot compare with the salicylates, but like them, its action is interfered with by acids. I have only found it of use when, in the treatment of neurasthenic cases, it was combined with large doses of phenocoll hydrochloride, up to sixty grains a day. Quinine increases the excretion of uric acid, perhaps by contracting the spleen, the reservoir of uric acid, which may explain the headaches found after its administration. Of course, the sulphate radical would increase the acidity, and diminish the uric acid. It is frequently of use when convalescence is established. Colchicum, aside from its use in gout, is important only when uric acid is in excess in the blood, and the kidneys are incapable of throwing it off. It must not be used when dyspeptic symptoms are prominent, and it seems to me to be chiefly valuable when it purges freely. Although uric acid cannot be directly oxidized into urea, as can creatin and creatinin, yet under the inhalation of oxygen, two to three gallons, once or twice daily, we can surely reduce the amount of uric acid, and increase that of urea. This is sometimes an important agency in the treatment of anæmic patients. Following Prout, dilute nitro-muriatic acid, five to ten drops, three times a day, before meals, is useful in the hepatic variety, after the acute dyspepsia is relieved. The hydrochloric acid digests the proteids, and the nitric acid stimulates the liver. This especially is well combined with compound tincture of gentian in teaspoonful doses, or with tincture of nux vomica, fifteen drops, three times a day in half a glass of water. The combination of dyspepsia, palpitation and insomnia, is frequently relieved, as if by magic, by lavage, using hot water, to the quart of which, a drachm of Carlsbad sprudel salt is added. This operation frequently need not be repeated more than three or four times to obtain complete relief. In cystitis due to lithæmia, I consider pichi to be the most valuable remedy; forty drops of the fluid extract when combined with an alkali, as fifteen grains of bicarbonate of soda, being given three or four times a day. In this class of cases, alcohol is a poison.

To sum up this important part of the subject: I believe that in a meat diet, perhaps limited in quantity, using only green vegetables, with the curative and prophylactic effect of the lithia water, and with a regulation of the patient's habits, as regards exercise and meals, and with the intermittent use of phosphate of soda, we have a sure and accurate solution of the problem of how best to treat our lithæmic patients.

At the last session of the Utah legislature an act was passed creating a board of medical examiners consisting of seven members.

COUGHING MADE EASY IN BRONCHIECTASIS.

BY H. D. DIDAMA, M.D.,
OF SYRACUSE, N. Y.

A few years ago, at Skaneateles Junction, resided an old lady who for many months had been troubled with a cough which her friends regarded as consumptive. The cough was severe enough at all times, but twice or thrice in twenty-four hours there were violent, long-continued paroxysms attended with copious and extremely fetid expectoration.

I recognized, as you all would, bronchiectasis. The patient had not derived much benefit from the cod-liver oil and numerous cough medicines which she had taken faithfully in great abundance. Her appearance did not denote tuberculosis, and under change of treatment relief was afforded, the paroxysms ceased and the offensive odor disappeared.

Recently Mrs. H., of C., about thirty-five years of age, came under my observation. She had had bronchial catarrh for a year and a half, and a few slight hæmorrhages.

After a time the cough became paroxysmal, and during these violent fits, which lasted without sensible mitigation from sixty minutes to three hours, the copious expectoration was so offensive that the windows had to be kept open. The disease was thought to be tuberculous, cancerous ulceration or gangrene which involved the stomach, for vomiting was of frequent occurrence, and the odor of the vomited material was also, as the patient expressed it, enough to knock anybody down.

At my first visit the patient was found weak and emaciated, but without the tuberculous or cancerous facial expression. The scent of the expectoration fairly justified the description given. The history showed that enough food was taken, but that two or three times a day it was all vomited, and that these vomiting spells coincided with the severe coughing ones. There was some diarrhœa, but the odor of the alvine discharges was entirely unlike that of the vomited material. There was no gastralgia, no tenderness in the epigastric region. The diagnosis of course was uncomplicated bronchiectasis. The *rationale* of the symptoms was obvious. If the stomach had been involved the stools would have possessed the peculiar odor of the sputa. Nausea and vomiting, which were excited by the violent coughing and the repulsive smell, increased mechanically the amount of the putrid material expectorated, and this, mingled with the ejected food, perfumed the whole mass and led to the mistaken diagnosis of gastric ulceration or gangrene.

Proper explanations were made and encouragement given to the intelligent patient, and a therapeutic plan was instituted which included tonics of iron, strychnine, Venice turpentine, santal, and so forth, and the use with a steam atomizer of a deodorizing spray.

Perhaps the most important element in the treatment of this case and the one at the Junction was the emphatic and iterated direction to cough downwards. The usual and proper information was given to the patient that a pocket was formed in the tubes of the lungs, and that when this pocket became filled and running over, as it did two or three times a day, the unpleasant and irritating material caused the terrible fits of coughing. The walls of the pocket, it was further explained, were so thick, that even the most violent and long continued attacks could not compress them enough to empty the pocket entirely, and so a portion of the putrid matter remained to contaminate future collections. Now by lying in bed (the patient was told) or on the lounge, with one hand on the floor and the head almost reaching there, the pocket would be inverted and the fluid would run out almost of itself, and its expulsion would be hastened by a short spell of coughing. The direction was given not to wait until the pocket became wholly filled again, but to anticipate this period by inversion four or five times daily.

The injunctions were obeyed. The result was favorable. In five minutes the pocket was emptied more completely than when she had formerly "coughed her head off" for an hour or longer. The odor disappeared, vomiting and diarrhœa ceased, the flesh came back; and to-day, with the exception of a slight cough and a few mucous râles in the left infra-axillary region, the grateful patient, who rides twenty miles to town for inspection every two weeks, is decidedly convalescent.

It is proper to add, that the idea of coughing down hill was derived from a small pamphlet published nearly fifty years ago by the poet N. P. WILLIS, who claimed that he had cured himself of consumption by this original device and by horseback exercise. In all probability the supposed consumption of the poet was bronchiectasis, but his suggestion is none the less valuable; and the writer of this paper has known great—even if temporary—relief and comfort to be obtained by this gravity treatment in cases of phthisis, when large cavities and excessively annoying coughs existed.

Recently I was invited to see a patient who had a cavity in the right infraclavicular region capacious enough to hold a teacupful of muco-pus. He discovered that he could sleep three or four hours with but little disturbance while lying on his right side, but that if—after this period of repose—he turned upon his left side, a brief fit of coughing ensued. If he attempted to sleep lying on his left side, the cough was incessant, and the sputa only moderate in amount. Every one can see without explanation that while in one position the secretion accumulated, exciting in the nerveless pocket little or no cough, till the reservoir was filled, when on turning over, the irritating material ran out by gravity into the sensitive bronchi and produced an easy cough, sufficiently prolonged to secure thorough evacuation; in the other position, on the left side, there was a continual dripping from the abscess cavity and a wearing cough which banished sleep. Two mornings after, as I learn, the patient, after a prolonged sleep which lasted all night, turned upon his left side. The large amount of pus which had been permitted to accumulate during this long period, poured out suddenly into the tubes and produced strangulation and almost instant death.

It is respectfully submitted that this *facilis descensus* treatment might be so beneficial in some cases of real or supposed gangrene of the lung, communicating with a bronchus, that pneumonectomy might be unnecessary.

THE yearly meeting of the Nebraska State Medical Society will take place at Nebraska City, May 16, 17 and 18.

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

Second Annual Meeting, held in New York, October 4, 5 and 6, 1892.

WILLIAM J. MORTON, M.D., PREST.

SECOND DAY, OCTOBER 5—MORNING SESSION.

(*Continued from page 282.*)

A CONTRIBUTION TO THE ELECTRICAL TREATMENT OF CYSTIC GOITRE AND HYDROCELE. ALSO A NOTE ON PSORIASIS.

By Charles R. Dickson, M.D., C.M., Toronto, Canada. Electro-therapeutist to Toronto General Hospital, Victoria Hospital for Sick Children, and St. John's Hospital.

The object in reporting the following cases thus early is to ascertain if others have worked along the same lines of treatment, and if so what the results have been, for I am not aware that the plan has been proposed before, but it seems such a rational procedure that I trust it will merit a trial. It is applicable to other conditions, but my remarks are restricted to the initial cases mentioned in the title of the paper.

Bilocular Cystic Goitre.—S. H. C., bookkeeper in a village general store, gave the following history. Age 19 years, father alive, healthy; as he was only eight months old when his mother died, he cannot tell anything about her from personal knowledge, but says she had a thick neck which was hard and never contained fluid, but it "turned to an abscess, which affected her brain and killed her" at the age of 32 years. There are three boys and one girl, all living; none of the others having neck trouble. Healthy when a child. First noticed swelling about 11 years ago. Right lobe formerly the larger, but being treated by tapping and injections, was reduced. Left lobe emptied twice but refillled in two weeks. Left lobe and isthmus constitute the chief enlargement now. Circumference of neck 16 inches. No dyspnœa or dysphagia at present, but suffered from them before first tapping. On July 3, 1891, patient came up to Toronto for treatment. As he felt very timid ether was administered by Dr. Scadding, who also kindly assisted me. The battery used was the ordinary portable 24-celled bichromate battery. The positive electrode a 7x4½ inch sponge covered zinc plate was placed under shoulders. For the negative electrodes two steel needles (piano wire) were introduced, one into the isthmus, the other into the left lobe from below upwards, 18 cells gradually brought into circuit, the meter registering 30 milliampères, which was kept up for eighteen minutes, then in the stead of the former positive electrodes a small circular one was placed over the tumor, and 20 ma. for five minutes employed, the cells again gradually cut out, needles withdrawn, and a simple boracic dressing applied. Very little change was perceptible after this treatment, and it occurred to me that if the cysts were filled with a better conductor than the ordinary contents the action would be much more vigorous, and on July 11, with the assistance of Dr. Scadding, this idea was carried out. A hypodermic injection of five minims of a mixture of five per cent. cocaine with six per cent. antipyrine in distilled water was administered, and a medium sized aspirating needle being introduced, the contents of the cysts were withdrawn. As the loculi communicated one puncture was sufficient then, without removing the needles the cysts were filled to distension with a solution of chloride of sodium in hot water ʒi to ʒj. One steel needle was also inserted and both it and the aspirating needle connected with the negative pole, the positive pole being below shoulder as before, a strength of 30 m.a. was used for five minutes, then the small positive electrode was placed over the tumor, and for five minutes more a strength of 25 m.a. employed, the cells cut out of circuit, the saline solution withdrawn, much gas accompanying it, the needles removed, and the punctures dressed as before.

On August 5, the patient wrote that the cysts were refilling, but not so rapidly, it being now twenty-five days since last electrolysis, while formerly a fortnight sufficed to refill.

On August 8, after a hypodermic of the cocaine mixture the cysts were again aspirated, the contents being much more fluid; they were then filled with the saline solution, the aspirating needle connected with negative pole, positive being between shoulders, a strength of 30 m.a. for seven minutes used, then the positive being over the tumor, 25 m.a. for seven minutes, the cysts again completely emptied and a large borated compress placed on site of operations, firm pressure being kept up by means of a broad adhesive strip and the patient again sent home.

On Sept. 9, he wrote, "My neck is down flatter than when I left you last," and on the 12th I find his neck measures 14½ inches in the greatest circumference, and the gland reduced to the size of a small walnut. On Oct. 30, he wrote that the lump was still there, but that he had enjoyed much better health, I advised that the neck be let alone for the present, but that on the first sign of refilling he should report.

On Jan. 18, 1892, he writes, "I believe the lump has completely gone away, my neck is getting in better shape all the time, I am sure I have enjoyed three times better health the last three months than ever I did before. I used to be troubled with headache a lot, and I have not had it once the last three months; I have gained weight considerably too," and much more in the same strain.

So far the result was most gratifying, and as I had heard nothing further from him I counted it a cure, and thought it might be well to report it, but to make sure I wrote to him and on September 12, last, he replies, 'My neck started to fill up again last June, but it did not fill up very much." He then stated that a doctor passed through his village selling a wonderful thick neck remedy he was using. Naturally I felt very much disappointed and my first impulse was to withdraw the paper, but our failures often teach us more than our successes and for the benefit of others as well as ourselves should be reported. Had the process been carried further I do not doubt the cure would have been complete. The cyst walls should have been thoroughly obliterated instead of relying on nature to carry on resolution. I confess that in using electrolysis I try to get along with the least strength that will do the work.

Since treating this case I have applied the principle of filling cysts to distension with a good electrolyte such as salt solution surrounding a needle affords in other cases with most gratifying results, the thin walled cysts being the most amenable to treatment.

Hydrocele.—In May of this year I was consulted by a man with hydrocele who stated that various treatments had been tried without avail so I determined to try the same principle to his case. The following was his history: P. S., teamster, three years ago last winter while "skidding" logs in a lumber yard the hook in the single-tree broke, and the single-tree flew back striking him in the epigastric region; a pair of thick mitts in his belt broke the force of the blow, was unconscious for about five minutes, but was at work again the next day. Right testicle began to swell shortly aftewards, but he did not consult anyone till the spring. The hydrocele was tapped three times at intervals, then in Nov., 1890, without removing the fluid 20 drops of a 50 per cent. solution of carbolic acid in glycerine was injected and a year later the injection repeated, the fluid being first removed. In January of this year, he was advised to use a

support and constructed one which he has continued to use, as he thinks it relieves him.

On May 6, 1892, after a hypodermic injection of five minims of the cocaine mixture an aspirating needle insulated with hard rubber to within one inch of its tip was introduced, the bare portion being well within the sac, seven ounces of straw colored fluid withdrawn and a warm saline solution grxl to ℥i pumped in; as the patient complained of considerable pain only 3½ ounces were introduced and the balance made of hot water; the needle was connected with the negative pole while the large positive electrode was placed over the epigastrium, the cells were gradually brought into circuit till meter registered 15 m.a., which was continued for twenty-three minutes, then 25 m.a. for five minutes when the action was stopped, the sac emptied, a marked decrease in the quantity of fluid being noticeable and a consequent abundance of gas. A dressing of iodoform and boracic acid on alembroth gauze applied and retained by adhesive strips and the patient sent to his hotel with instructions to keep quiet and off his feet. The following day the testicle was strapped to ensure close apposition of walls of sac.

Besides the above trouble the patient had several patches of psoriasis, which I thought it well to give some attention to; two spots on the forehead near scalp, and three large ones on right shin. He stated that it first appeared ten years ago, no specific history; he was living in Banffshire, Scotland at the time and had consulted a large number of medical men both in the old country and on this side, many of them eminent in their profession, but had never been able to get rid of the trouble.

The resistance through the dry scales being very great, they were kept moistened with a solution of salt and water and a bi-polar carbon roller electrode connected with both poles of a galvanic battery passed over each spot in every direction, for about five minutes at each, the meter indicating from 10 to 30 m.a., and quite an amount of gas being evolved. This was repeated each day from May 7th till the 12th. The spots were all looking so much smaller and better in every way then, that he decided to leave for home. I gave him the following prescription:

℞. Acid chrysophanic gr. xx.
Adipis ad ℥ii M. ft. ung.
Sig. Appl. nocte maneque.

On August 20, he returned to report with no sign of the hydrocele, his general health very much improved, and the psoriasis entirely gone. It disappeared completely three weeks after he stopped coming and before he had used half the ointment; he stated also that when the first injection was tried he was thirty-four days off work, while after the electrolysis he was off for twenty days only.

I trust that both these cases possess sufficient interest to justify me in reporting them at this early date, they were the first treated by me in the above manner, and I have altered my procedure very little in dealing with subsequent cases of cystic goitre, I have treated no further cases of hydrocele. With regard to strength of application of electricity I take this stand. I recognize in electricity a force most potent for weal or woe therefore instead of endeavoring to administer the greatest strength a patient can stand and still survive, I aim to use the mildest that will prove curative, keeping in mind the fact that between our poles within our circuit are included parts of the most delicate mechanism. Nature is often most kind to us in coming to our aid with her recuperative powers, and repairing damage we may have done, but let us not on that account be led to presume on her kindly offices, but remember that there may be a limit which it would not be well to overstep.

A word about the electrodes. The negative is an ordinary aspirating needle which is readily insulated by heating it over the flame of a spirit lamp and at the same time warming an old hard rubber thermometer case and rubbing on till the requisite covering is obtained; a little practice will give a smooth and even insulation.

In the positive electrode a potter's sponge is sewed to the soft rubber backing in such a manner that the metal plate can be slipped out and the sponge then washed when necessary. In application in goitre, I wet the sponge well with a solution of soda bicarb. in hot water, apply between shoulders with a towel at its back to protect clothing, then while it is softening the cuticle, thereby lessening resistance, insert the aspirating needle, administering just previously the anæsthetic hypodermic, then directing patient to swallow several times in succession, steady the gland with the fingers and plunge the needle into the cyst, carrying part of the insulated portion within its wall. To avoid puncturing posterior wall, I direct patient to keep on swallowing, if the point enters the posterior wall the external end of the needle will be raised by the act of swallowing. Where practicable, puncture from the median line as low down as possible and in a direction from below upwards, where punctures have to be repeated, do so at the same site, aspirate contents, then inject to distension, the warm saline solution, make the connections with battery which bring into circuit, increase strength slowly, from 30 to 50 m.a., has been my usual strength, from ten to twenty minutes duration, decrease strength slowly to 0, then remove positive electrode, empty cyst as completely as possible, dress, apply compress, and broad adhesive strip. When necessary operation may be repeated in one week, but it is preferable to let a longer time intervene.

Discussion.

Dr. Herdman said that in cases of goitre, relief is demanded sometimes on account of the degree of swelling, sometimes on account of its effect on the general health, and sometimes simply to remove the deformity. There are ordinarily three stages of enlargement, viz.: 1, a simple dilatation of the vascular structures; 2, a stage in which some of the follicles become obstructed by swelling, or by their own secretion possibly, and as a result, cysts are formed; and 3, a continuation of the disease process, characterized by an increase in the connective tissue sub-stroma. The first stage is amenable both to internal and to electrical treatment. Cystic goitres, and also hydroceles, in his opinion, could be better treated by other than electrical treatment, and this statement was the result of a careful examination of the literature of the subject. In the third stage, if the fibrous changes are generally diffused throughout the gland, the condition is very refractory to internal medication, and it is just this condition which seems most amenable to electrical treatment. Cystic goitre can be more successfully treated by the withdrawal of its contents, and the injection of iodine, than by the use of electricity. In the fibrous form, the vascularity of the gland has been so reduced, that medication has but little effect, and counter-irritation in this region cannot be kept up for any great length of time, and the disfigurement which it produces is often as objectionable as the enlargement itself. This is a dangerous region in which to thrust needles, but with a proper knowledge of the anatomy of the part, one can by electric action, after a prolonged course of treatment, secure absorption. But it should be remembered that electro-therapeutics is only brought into disrepute by attempting to accomplish with it impossibilities, and it was for this reason that he objected to its use in cystic goitres.

Dr. Kellogg quite agreed with the last speaker, as to the limitations of electrolysis in the treatment of goitre, but it

should not be forgotten that patients will sometimes refuse any form of cutting operation, while they will readily submit to electrical treatment. For such individuals, the electrical treatment of cystic goitre is appropriate. He had tried filling the cyst with a solution of iodide of potassium, and then subjecting it to electrolysis. This solution is an excellent conductor, and the nascent iodine which is liberated by the resulting decomposition, acts favorably on the lining membrane of the cyst.

Dr. Herdman remarked that he had also obtained satisfactory results from this method, but he had been unable to satisfy himself about the occurrence of this decomposition.

Dr. Kellogg replied that he knew from experiments outside of the body, that such a decomposition occurred, and this view was sustained by the fact that on withdrawing an intra-uterine electrode, wrapped with absorbent cotton saturated with a solution of iodide of potassium, after a treatment of uterine fibroid, the electrode would be found deeply stained with iodine.

Dr. Herdman said the conditions in the latter case were different, for the iodine was directly in contact with the poles.

Dr. Kellogg explained that in employing electrolysis of the cyst, he introduced a small aspirating needle, having a binding-post attached, and then, after evacuation of the cyst contents, and the injection of a solution of iodide of potassium, he attached the rheophore, and the state of his needles when withdrawn would show that the decomposition occurred.

The President said that he had been tempted to try this method of treating goitres. His experience led him to believe that those who reported so many successes, were confounding a symptomatic recovery with organic change in the goitre. The first essential to an intelligent electrotherapeutic treatment in any case, is an accurate knowledge of the pathology of the condition, and as the pathology of goitre is unknown, it is not surprising that indifferent results had been obtained. For many years, attempts had been made to treat the condition by measures directed to the sympathetic nervous system, because goitre is associated with exophthalmos and a rapid heart action. Dr. Louise Fiske Bryson, of New York, had first pointed out the remarkable fact that the chest expansion in those having goitre is greatly below the normal. Erb had called attention to the fact that the condition present in these cases, was often one of neurasthenia, and that, therefore, general systemic treatment by electricity was indicated. The speaker said he had recently treated a goitre measuring thirty-two inches in circumference, and occurring in an Italian woman. At present, he was trying the effect of electro-negative puncture, using an insulated platinum needle, and an indifferent electrode applied to the back of the neck. A sort of recess had formed in the hard fibrous mass. The punctures were made under electro-cocaine anæsthesia. He had also tried injections, and the percutaneous method, but with little success. In accordance with the recent theory that the changes in the thyroid gland are due to changes in the restiform bodies, he was now trying the effect of treatment with the negative pole at the base of the brain, and the positive pole at the forehead, and also the effect of long static sparks. In all of his cases there had been a very moderate diminution in size of the tumor, although after one or two months, the general appearance would be decidedly improved, and the exophthalmos not infrequently would have disappeared, and the pulse would be reduced thirty or forty beats per minute. Readers of recent French literature are aware that to Gautier is due the credit of calling attention to the electro-chemical method, or the method of injecting a solution of iodide of potassium, and then obtaining the effects of free iodine by decomposing this solution by electrolysis. The method has also been applied to other conditions, with the idea that the electric current, by reason of the high conductivity of the solution, would penetrate more deeply into the tissues.

Dr. Goelet said that Gautier employed a cotton-wrapped platinum applicator moistened with a solution of iodide of potassium (1 to 10), to the inside of the uterus, using either the positive or negative pole according to indications, in the treatment of endometritis. A current of fifty to eighty milliampères was employed, and the results were quite satisfactory. He also employed it in the female urethra, but the speaker, in repeating these experiments, had found it difficult to persuade patients in this country to submit to these applications in the urethra, though the applications to the endometrium were satisfactory.

Dr. Holford Walker was a little disappointed at the results obtained by Dr. Herdman in the treatment of fibrous goitres. Cystic goitres, like œdematous fibroids, do not come within the range of electrical treatment. Personally, he had been very successful in the electrical treatment of fibrous goitres with currents of 100 to 120 milliampères. He molded a sheet of tin to the enlargement of the neck, then filled it with clay, and interposed two layers of cheese-cloth between the clay and the skin. A large pad, covered with absorbent cotton, is used as the indifferent electrode, being placed between the shoulders, and kept constantly wet by an assistant with a solution of bicarbonate of soda. The sittings are of ten or twelve minutes duration, and repeated three times a week, yet his patients had not experienced the slightest discomfort from the use of these strong currents. He could recall a dozen cases in which the fibrous form had been cured in this way; and in two of them, nurses, the disease had existed since girlhood. In two cases two and one-half to three years had elapsed since treatment.

Dr. Herdman said that he would not regard any enlargement, even though very firm to the touch, as fibrous, unless it had developed very gradually, for considerable time is requisite for the occurrence of these fibrous changes. The President's remarks had been on the subject of exophthalmic goitre, which is very different from cystic goitre, although the two conditions are not infrequently associated. In the treatment of exophthalmic goitre, he could say positively that it had never failed, though in some of his patients there had been general œdema, tremendous interference with respiration, extreme anæmia, and a pulse beating as high as 160 per minute. He knew of no other disorder which yielded such brilliant results. His method was to apply the positive pole over the tumor, and the negative over the cervical enlargement of the spinal cord, and to employ the reversed continuous current. His idea of the pathology was, that it was an irritation of the centres which control the vasomotor system, and the circulation through the heart, and that, owing to this irritation, the thyroid gland became enlarged by dilatation of its blood-vessels, and Müller's muscle, which is situated back of the eyeball, is caused to contract, thereby producing the protrusion of the eyeballs. In cases of relapse, an increase in the rapidity of the circulation is always first noticed, and this is an indication for the use of tonics, and the resumption of the local treatment by the reversed galvanic current. He had tried all forms of the induced and continuous currents, and had had better and quicker results with the reversed galvanic current.

The President said it would be impossible to exclude exophthalmic goitre fr m such a discussion, as he had found the cystic form often associated with this type. He, too, had had no difficulty in curing the pure exophthalmic goitre, but he had never seen any marked reduction in size of a

distinctly fibrous goitre, although the other symptoms were decidedly relieved.

Dr. Dickson, in closing the discussion, said that we met in this Association on common ground, and he had ventured, therefore, to report his unsuccessful case. He was more than ever glad that he had done so, on account of the interesting and profitable discussion which the paper had elicited. We must look to the electrical engineers for much of our instruction, for they get the correct idea of the subject at the start, while most of us have to unlearn a great deal. He had not employed the term "current" in his paper, because he thought this conveyed a wrong idea. At the present time, he had probably no less than twenty cases of goitre under treatment in Toronto General Hospital. He thought the cases which are probably the least amenable to treatment occurred in girls of from fourteen to sixteen years of age, and did not consider it advisable to puncture in such cases, but would advise galvanism of the sympathetic instead. But while he had effected marked reduction in fibrous forms of long duration, treated exophthalmic forms by Beard and Rockwell's plan of central galvanization with most happy results, and had been successful with other forms, yet these had nothing to do with the subject of his paper, which dealt with one particular plan offered as a contribution to the treatment of one particular variety of goitre. He thought, as regards pathology, Amory in his works on electrolysis had made the best presentation of the subject he had seen. His use of the salt solution was for the purpose of securing a good electrode to fill the whole cavity and act on its walls, and not for the purpose of decomposition, etc. As to Dr. Herdman's suggestions of first injecting iodine, this had been tried without success in the case mentioned and in others since treated, while the electrolytic treatment produced very marked results.

With regard to employment of carbolic acid in hydrocele, and the relative severity of the treatment, while Dr. Herdman advocated the pure acid, in the case cited 50 per cent. carbolic had been injected, once without previously removing the fluid and again after removal of the fluid; after the first injection he was thirty-four days off work, while after the electrolysis he was off work for twenty days only, and need not have rested even that long. When properly performed, there is no noticeable disfigurement following operation. There was much more that might be said, but time did not permit reference.

"MEDICAL ELECTRICITY FROM AN ELECTRICIAN'S STANDPOINT."

By John J. Carty, Esq., Vice-president of the New York Electrical Society.

I think you will all agree with me that it is desirable for the advancement of the science of electro-therapeutics that there should be a thorough understanding between electricians and physicians.

The electrician who undertakes to examine the subject of medical electricity is puzzled by the strange electrical terms which he encounters in the literature of the subject, and which are used by the members of the medical profession with whom he may converse. This certainly does not look like a mutual understanding, and that no such understanding exists I have proved by the following test. I chose ten men holding the degree of electrical engineer from the principal colleges of this country, including Cornell, Columbia, Massachusetts Institute of Technology, Lehigh University and others, and asked them, each in turn, the meaning of three of the terms most frequently encountered, namely, faradism, franklinism, and galvanism. Not one of them knew the significance of these terms, although they were all familiar with the works of Faraday, Franklin and Galvani.

Thus it will be seen that either the curriculum of our American technical schools is at fault, or the terms employed are misleading. That the trouble is with the terms, I shall endeavor to prove in this paper.

Let us begin by inquiring into the meaning of faradism. It is a word undoubtedly founded on the magnificent discovery of Faraday, that a current of electricity may be generated by plunging a permanent magnet into a coil of wire. This is the fundamental principle of dynamo machines and motors, which, in connection with systems of electric lighting and power distribution, furnish an example of faradism worthy of the name.

The magnificent system of telephone communication which has grown up in this and other countries, together with many systems of telegraph and numerous other electrical appliances, are also founded upon the discovery of Faraday and may properly be called examples of faradism.

Faradism is referred to in medicine, however, in a narrow sense. It is applied to the current generated in induction coils, such as are found in ordinary "shocking machines." Galvanism, as used in medicine, refers to the current which may be obtained from the galvanic battery. And franklinism, as may be inferred from the kite experiment of that eminent Boston philosopher, refers to effects produced by discharges from Leyden jars, and Holtz or other static machines.

The superficial effects of these currents are so different, that there is, in the minds of many, a vague notion that the three currents are essentially different in their nature and represent three different kinds. Such, however, is not the case, for it is within the power of the electrician to generate a current by magnetic induction, based on the discovery of Faraday, which will produce all the effects which doctors call galvanism and franklinism; and on the other hand, by means of a galvanic battery and suitable current changing devices, to produce effects which are identical with those usually regarded as being peculiar to faradism and franklinism; and still further, although the problem would be more difficult, it would be possible, by means of suitable electro-static generators, to produce the effects of galvanism and faradism.

Thus it will be seen that the differences between the three "isms" are those of degrees only. The particular form of faradism used by doctors would be defined by electricians as an alternating current of a given frequency, having a certain value in amperes and volts. Galvanism would be spoken of as a direct current, constant in respect to its voltage and amperes; and if it were interrupted, the number of interruptions per second and their nature would be stated. In the case of franklinism, it is again a question of volts, amperes and interruptions, plus a phenomenon of oscillations and surging which will be referred to further on.

If this view of the case be correct, it is clear that the retention of such terms as faradism, franklinism and galvanism can result only in confusion and in preventing that harmony between the two professions which it is so important to effect. Owing to the rapid and astonishing developments of electricity now being made, it is imperative that the science should cast aside the relics of a former age, and scrutinize most carefully its nomenclature. As an example, the term "resistance," the correct meaning of which is so important to physicians, has lost its original significance. Not many years ago a piece of iron wire and a piece of copper wire, each measuring ten ohms, were thought to offer the same resistance to the passage of a current of electricity, regardless of its character. Now it is recognized that they are equal in resistance, only in respect to certain currents; when an alternating or an interrupted current is used, the resistance of the iron wire increases rapidly, while that of

the copper remains substantially the same. This peculiar behavior of the iron wire is due to its self-induction, and is now measured in units of inductance.

The inductance of a copper wire which is normally very low may be vastly increased by coiling it around a piece of iron. Such a coil properly proportioned might be connected across the poles of a powerful alternating current dynamo without producing any perceptible effect upon the wire; whereas if the same wire were laid out in a straight line it would be volatilized instantly. Again, if the same coil were attached to the pole of an ordinary 100-volt Edison dynamo giving a direct current, it would be destroyed.

Take the case of a condenser, which is a modification of the Leyden jar, consisting of plates of metal separated by an insulator. If such an apparatus be placed in the circuit of a 1,000-volt direct current machine, it will absolutely prevent the passage of any current. If, however, the condenser was placed in the circuit of an alternating current machine, the full current would find its way through.

Thus you will see that the alternating current behaves in a paradoxical manner. In one case it cannot find its way through a coil of copper wire on account of the inductance; and in the other case it passes readily through the insulation of the condenser, although the insulation be perfect.

The phenomenon of an alternating current passing through an insulator calls for precision in our ideas of insulation; and while it may seem impossible that a substance can be an insulator and still allow currents to pass readily through it, yet such is the fact. The inconsistency is explained by an examination into the theory of displacement currents, which only can be referred to in this paper.

It now can be asserted with safety that the resistance of an inorganic body—using the term "resistance" in its broadest sense—is different for every degree and form of current.

Taking this view of the case, a more intelligent selection of currents can be made where the problem is to reach, in an electrical manner some specified portion of the human system; an organization of complex chemical structure, made up of solids and liquids; conductors and non-conductors. For aught any one can tell, it may in some portions possess high self-induction and in others obey the ordinary law of conductivity, and in still others, present conditions resembling the actions of condensers.

If the periodicity of the current is of such prime importance in the case of ordinary physical bodies, it certainly must be of some account in the more highly organized system; yet how little do we hear of the periodicity of faradic currents or of their characteristic curves?

Alternating currents for producing electrolysis are not employed in medicine, or as far as I know in any other science, yet electrolysis by alternating currents is possible and is of a peculiar kind. The alternations causing hydrogen and oxygen to be generated at each pole. These gases being in the nascent state will recombine under proper conditions. It would seem that the disturbance produced by this electro-chemical action might be accompanied by certain physiological effects which would be of therapeutic value.

Some of the remarkable researches of recent experimenters have been of such a nature as to warrant mention here. That an intimate relation exists between light, heat and electricity has long been known, and the beautiful series of experiments testifying to this relationship, have become classical and are no doubt familiar to you all. Those who are acquainted with the methods of Faraday are not surprised to know that he suspected that light and electricity were propagated in one and the same medium, namely, the ether. The mathematical work of Clerk Maxwell, in support of the electro-magnetic theory of light, confirmed this view, and recently Hertz in Germany has generated electric waves which were found to be propagated at the same rate as waves of light and which were, by means of prisms of pitch and other appliances, refracted, reflected and focused. In other words, they were found to obey much the same laws as rays of light, and to differ from light much the same way that heat does.

In the production of waves of proper length for his experiments, Hertz found it necessary to resort to a special application of Leyden jars and coils of wire to produce electrical oscillations of a frequency of many millions per second. The effects produced by these oscillations being so entirely new, it would seem that a wide field for investigation might be found in their application to medicine. And indeed I find that your honorable president Dr. Morton, has already done good work in this advanced field.

In passing over the recent advances of electricity, it would be impossible to overlook the name of Tesla, whose labors have carried us all into a region so strange that we have not yet recovered from our wonder. Still it has been shown that the forces which he set at work are capable of producing curious physiological effects, one of which I have in mind, being the peculiar sensation of warmth when the body is subjected to his electrical bombardment. It is impossible at present to speak of this remarkable action in more precise terms.

Some one said, after the experiments of Herz, that "Electricity has annexed the whole domain of optics. Let us hope that the labors of your Association may be so crowned with success that some day electricity will annex the whole domain of medicine.

Discussion.

Dr. Nunn asked about the use of the term, "alternating" current in connection with faradism. He thought the faradic current was not an alternating current, because it does not flow in either direction with equal stress.

Mr. Carty replied that an alternating current changes its polarity, but it does not necessarily do so any particular number of times per second. If the curve of a faradic current were plotted, it would be found that they never are the same twice in succession. He wished to particularly emphasize the fact that the term, "faradic current" does not describe, as medical men usually consider it does, an entity. As to the question of the polarity of a medical induction apparatus, he would say that when the vibrator closes the primary circuit, and induced current is produced in the coil in one direction, and on opening the circuit, an induced current in the opposite direction; there is an interruption in the vibrator, and an interruption in the current, but the interruption in the current does not necessarily coincide with that of the vibrator, as it may be affected by other currents in the neighborhood.

Dr. Herdman said that he had obtained some remarkable physiological effects with the alternating current, and he would like to know whether this current is practically the same at all times.

Mr. Carty said it was subject to variation, and it was only by a tracing apparatus that the exact nature of the current at any given time could be determined.

Dr. Nunn asked if it were possible to get a correct nomenclature for that form of electricity which medical men are accustomed to describe as "faradism."

Mr. Carty said he could not on the spur of the moment, undertake to suggest a better nomenclature; he only wished to point out the inaccuracy of the present one.

Dr. Kellogg said that the paper just presented would prove valuable as an aid in arriving at a proper nomenclature. He had been using the alternating current of 12,000

vibrations and had also noticed some peculiar physiological effects from it, and on making tracings from it, had found that it was a true sinusoidal current.

The President said that he had long recognized in his teaching, the inadequacy of our conventional terms, faradism, franklinism, and galvanism, and about one year ago, he had suggested, half in jest, that the character of these various forms of electricity might be expressed in the form of prescriptions. Thus:

℞. Milliampères (practically *nil*).
Volts 100,000.
Interruptions, 1 million per second.

This would indicate a static current.

℞. Milliampères, 500.
Volts, 30.
Interruptions, *nil*.

This would represent a galvanic current.

℞. Milliampères, 1–20.
Volts, 500.
Interruptions, 200 per second.

This would represent a faradic current.

Dr. Herdman said he had been frequently mortified at being called upon to explain the meaning of such terms, and he suggested that we abandon them for those commonly employed by electricians. We would then speak of the continuous current, the induced current, and the alternating current.

Mr. Carty, in closing the discussion, explained that in stating that a current varied so greatly in medical batteries, he referred particularly to the fact that medical men ignored the question of the *periodicity* of the current; this was not the fault of the makers. Dr. Morton's prescriptions were an exemplification of the saying, that "many a truth is spoken in jest," and it was a good starting point for a more exact nomenclature.

ELECTRICITY AS AN ANÆSTHETIC.

By William F. Hutchinson, A.M., M.D., Providence, R. I.

Disease means pain, pain is disease. Were euthanasia invariable, were infractions of natural law free from following nerve derangements and free from pain, doctors in medicine would be fewer and their diagnoses even more uncertain than at present.

That there is a general routine of cause and effect in everything is nowhere made plainer than when an animal cries out with pain, thereby drawing attention to injury or disease and calling for help. Where its language is inarticulate, the character of its cry is sufficient to tell its cause, to bring swiftly to it all relief that may be within call. Those of us who have been in action will never forget the heart-rending cries of wounded horses, to whose voices keen anguish lent peculiar tone, beseeching the kindly bullet that should end their pangs.

Pain is one of nature's laws; it is her signal of distress, and a sure accompaniment to all diseases where sense is not abolished. It is the mark at which modern therapeutics has discharged its heaviest artillery—to conquer which it is continually devising new weapons, which are so rapidly replaced that their inefficacy is at once apparent.

For all practical purposes, it is indeed doubtful if any drug has been discovered within the last fifty years better than time-honored mandragora—the juice of the Eastern poppy—or some of its salts. An eminent physician said to me lately, while discussing this subject: "The man who gives to the world a new, safe and effective pain-killer, will deserve to have his name inscribed beside those of Harvey and Jenner."

Every now and then some learned person announces the production of some new remedy that will accomplish this, but experience soon demonstrates the fallacy of his statements, and opium still holds first place.

While it is true that general suffering must be fought with some drug that will rapidly pervade the system through the circulation and allay it by impressing nervous centers, I believe that the time has come to announce that all forms of localized pain, not dependent upon structural changes of nerve centers or destructive metabolism of other tissues, may be relieved promptly and effectively, and often cured, by an induced electric current, whose interruptions are sufficiently frequent and whose voltage is small.

Also, that by the same means, there may be produced a local skin anæsthesia sufficient to permit of painless minor surgery, such as opening felons. This is thus far confined to the space beneath electrodes, and does not persist longer than two, or at most three, minutes of time.

For years I have been studying clinically the action of electricity upon nerves, muscles, pathological growths and imaginations, with results varied, but, upon the whole, satisfactory; even more so, I believe, than those ordinarily obtained from drugs. While these have been largely eliminated from my work, careful and systematic use has been made of all sanitary, dietetic and climatic assistance that experience could teach or study suggest.

In some cases, such as Graves' disease or Bell's paralysis, cures have resulted from electrical treatment where medicine alone, though in most skilful hands, had quite failed.

In the acute pain of neuritis, the lightning pains of locomotor ataxy, and the persistent aches of spinal congestion, I have succeeded better with galvanism than with any drug that was tried, with the advantage of avoiding stomach or other disturbances caused by lethal medicaments.

And in diseases like neurasthenia, where imagination with its *fons et origo*, the mind, needs careful attention, I am convinced that best results are derived from a judicious combination of electrical and personal equations.

Just which is the more effective, I am unable to say, but neither has succeeded by itself in my hands; each has required to be accompanied by the other. The large part played by the imagination in the production and maintenance of certain forms of functional nervous disease is well understood by medical men, and yet it is still chiefly treated by drugs, as if it were an organic change.

While disordered mental processes and a sick body may be caused by an unrestrained imagination, it is certain that both may be restored to health by measures directed to the mind alone, as in hypnotism, and in the practice of electrotherapeutics, I have found it best to employ all legitimate means.

As a result of long work by the bedside, I had become impressed with a conviction that pain, arising from no matter what cause, ought to be and might be combated by some form of electricity, but the resources of my battery rooms, although large, were inadequate to produce this desirable result invariably or with certainty.

Although a descending galvanic current often cures neuralgias accompanying sciatic or other nerve derangements, every now and then a case would come up in which it completely failed, without any apparent reason.

Faradization, with any form of coil or rheotome at command, was so uncertain as scarcely to be worth mentioning The static spark was even less useful—in fact, I have of late discarded it as a pain-killer, believing that in a majority of cases, no matter how skilfully handled, it is as apt to aggravate as to relieve.

(To be continued.)

THE investigations of Drs. Abbott and McCormick, of the Johns Hopkins University, show that a solution containing 7 per cent. of acetic acid is more effective as a germicide than bichloride of mercury.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:
PER ANNUM, IN ADVANCE $5.00
SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to
THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE., CHICAGO, ILLINOIS.

All members of the Association should send their Annual Dues to the Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, MARCH 18, 1893.

MILWAUKEE, March 11, 1893.

It is necessary for all those who are to read or present papers at our meeting, to send a copy of the same to the Secretary of the Section in which the paper is to be presented, and in time for him to forward to the Chairman of the Committee of Arrangements the title of said paper fully one month before the annual meeting, as required by the By-laws.

I shall be obliged to keep strictly to this provision of the By-laws and no title of any paper can be published in our program unless it reaches me through the Secretary of the Section in which it is to be read by May 6. I find that the Secretaries of the Sections desire to know what papers are to be presented in their Sections, and I think that is proper and right, and that the titles of all papers should come to the Chairman of the Committee of Arrangements through the Secretaries of the different Sections.

U. O. B. WINGATE, M.D.,
Chairman Com. of Arrangements.

W. H. WASHBURN, M.D., *Secretary.*

STATE LABORATORIES—NEBRASKA TAKES THE LEAD.

In a recent article in THE JOURNAL appeared the following concise and pointed statement: "Medicine is neglected by the benevolent and by the State. From the former it has received almost nothing, and from the latter not a tithe of what has been lavished on technological schools; and this in spite of the fact that the State and all benevolent institutions have put a heavy tax of gratuitous and often compulsory service on the medical profession." This statement applies with particular and special force to the almost criminal neglect on the part of the State to provide facilities for the study of the nature, the prevention and the cure of infectious diseases in man and in animals—a policy which can safely be said to have already worked such untold damage to the happiness and the prosperity of our people as to merit the opprobrium of suicidal. The State furnishes a liberal education to those who desire one; it educates lawyers, engineers, teachers, geologists, astronomers and chemists almost gratuitously, and it builds and maintains libraries, observatories and workshops, but nowhere in this great country do we find a single laboratory, built and maintained by the Government, to which men can go and find opportunity to study the etiolology and prevention of the infectious diseases. There is no nobler pursuit for man to engage in than this study, the beneficial results of which are everywhere apparent in these days of biological research and of prophylactic and curative inoculation, and now that this study promises to bear rich fruit, it is singularly unfortunate and lamentable indeed that our own Government should have been so devoid of National pride and of instincts of self-preservation as to neglect so utterly to offer any inducements to original investigation in this line.

It is consequently both a great surprise as well as pleasure to notice that a bill has been introduced into the Legislature of Nebraska which provides for the erection and maintenance of a Patho-Biological Laboratory for original investigation of infectious diseases. The bill appears to have been wisely and judiciously framed; it aims to have the laboratory conducted according to the same principles which govern KOCH'S institute in Berlin, and the Nebraska laboratory will consequently, if this bill be passed, present opportunities for original research of infectious diseases from all points of view; it will be the first laboratory of its kind erected in this country, and Nebraska will merit the gratitude of her people at large and also of the whole American medical profession, if the required appropriation—a very moderate sum—is granted, because Nebraska will then have taken the first important step in the desired direction, and this will attract the attention and the emulation of sister States all over the Union. The human welfare and the number of important industries whose interests center in the work of such a laboratory make the beneficial local effects of such an undertaking, if successfully carried out, self-evident. The water and food supply will be improved and purified, epidemics of infectious diseases will become limited, and likely in time completely exterminated, prophylactic and curative inoculations will be developed and utilized; local boards of health will find their strongest help in this laboratory, and simultaneously rich opportunities are presented for all kinds of biological and pathological study and in-

vestigation, which American students now largely seek abroad. The fate of this bill will be watched for with close interest. The laboratory ought to be built at once. The question is: Does Nebraska understand her own good sufficiently well to appropriate the necessary money?

MORVAN'S DISEASE A VARIETY OF LEPROSY.

In 1883 DR. MORVAN, a physician practising at Lannilis, in Brittany, published (*Gazette hebd. de mèd. et de chirurgie*, August 31, 1883) a paper describing a number of cases of a singular and theretofore undescribed disease, to which he gave the name of analgesic panaritium, or pareso-analgesia, of the superior extremities. The symptoms are initiated by a weakness of the muscles, and sometimes by a pain in the forearm, that is succeeded by a swelling of the member, with the formation of deep palmar fissures and felons, usually painless, with phalangeal necrosis. It was for the latter condition that the physician was consulted, and at that period there was usually paresis of the muscles of the affected region that was afterward followed by atrophy of the thenar, hypothenar, and interosseous muscles. While faradization would produce energetic contractions in the muscles of the forearm, no reaction would be obtained in the atrophied muscles. There was analgesia of the forearm, sometimes of the arm, neck, and chest; and also thermal, but no other anæsthesia. There were vaso-motor disturbances. The existence of paresis, loss of pain, sense and thermal sense, circumscribed atrophy of the forearm or hand muscles, and trophic disturbances evidenced by the formation of cutaneous fissures and felons, constituted a congress of symptoms that has been called MORVAN'S disease in honor of the discoverer.

Since the time when MORVAN reported his first case many others have been described, and there has been a great diversity of opinion regarding its etiology. OSLER, DEJERINE, SACHS and ARMSTRONG, and others have regarded it as a peripheral neuritis, an opinion that is sustained by MONOD and REBOUL, who found the pathological changes of an acute parenchymatous and interstitial neuritis in the amputated finger of a patient affected with MORVAN'S disease.

GOWERS considered it a peripheral neuritis associated with syringomyelia, while GOMBAULT found in a necropsy, in a person that had suffered with MORVAN'S disease for forty-four years, intense changes in the peripheral nerves with a mild degree of sclerosis of the posterior bones and columns of the cord.

BERNHARDT, JOLLY, JOFFROY and ACHARD, and CHARCOT considered MORVAN'S disease as identical with syringomyelia, and the latter neurologist proposed that such cases be denominated syringomyelia of MORVAN'S type.

ZAMBACO-PACHA held (*Gaz. hebdom.*, 1891, p. 196) that syringomyelia and MORVAN'S disease were identical, and that the disease was only a form of anæsthetic leprosy that had been, so to speak, attenuated by the manners and climate of Europe. This theory was warmly controverted by THIBIERGE (*Gaz. hebd.*, 1891, p. 190); so ZAMBACO, with true scientific ardor, and well equipped for the investigation by reason of his long experience with leprosy in the Orient, went to Brittany in 1892. He has published (*Annal. de derm. et de syphilig.*, Dec., 1892) an illustrated report regarding many of the cases that he saw there, including among the number some of those that had been patients of MORVAN, that are undoubtedly cases of leprosy. He found examples of mutilating, of ulcerous, of anæsthetic, of tuberculous, and of ichthyosiform leprosy. Both he and DR. PITRES, of Bordeaux, have found the *bacillus lepræ* in the tissues of these patients. Besides these classic types he saw attenuated, mild, and frustrated forms of the disease. But he regarded the transition established in the various gradations of the disease that were seen.

He believes that most of the persons supposed to be affected with syringomyelia are suffering from an attenuated or slightly modified form of anæsthetic leprosy, that leprosy constitutes, like scrofulosis, a large class of diseases that are to-day considered as morbid entities, among which may be classed sclerodermia, and those undetermined conditions designated by the name of morphœa.

VIDAL, GAUCHER, BESNIER, and BARTHELEMY have accepted ZAMBACO'S demonstrations that MORVAN'S disease is but a form of leprosy, and the neurologists are relieved from further controversy regarding its etiology, as well as enabled to decrease their nosology by one term.

PROFESSIONAL UNIFICATION.

ILLINOIS STATE MEDICAL SOCIETY,
CHICAGO, February 10, 1893.

In order to unify the profession of this State and thus greatly increase its power for the general good, as well as to augment its scientific work, we are making an effort to bring into the Illinois State Medical Society all of those interested in society work. There are now enrolled 500 of our best physicians; but this is not enough. There should be a great society in Illinois embracing, as do the Massachusetts and Indiana State Medical Societies, practically all of the representative physicians in the State.

The Society has been organized so that any member of a local medical society may become a member of the State society, on the recommendation of the President and Secretary of the local organization and payment of annual dues for the current year.

As there are district or county medical societies practically within reach of every physician in the State, there is no reason why any good man may not become a member.

We want your influence and wish to see you at our meetings.

Inclosed is a blank application which I hope you will fill out and return to the Treasurer or myself as soon as it has been signed by your President and Secretary whose names

appear below. This if accompanied by the annual dues will place you on our rolls with dues fully paid for 1893 and will entitle you to the Transactions for the next meeting.

A copy of our constitution may be had by writing to our Secretary, Dr. D. W. Graham, corner of Monroe and Wood Streets, Chicago.

Hoping to hear from you soon and that we may have the pleasure of seeing you at our next meeting, I am yours truly,

E. FLETCHER INGALS, *President.*

The above circular letter has some points of both personal and professional interest to every medical practitioner in the State of Illinois, and in fact in every other State.

The first sentence and key note is an appeal for a unification of the medical profession in a practical membership in the State Medical Society, thereby making it possible to greatly increase its influence and consequent power for general good. This general good applies not only to the welfare and continued elevation of the individual members of the medical profession, but also is directly beneficial through them to the people of the whole commonwealth Just in proportion as the members of the medical profession equip themselves for the intelligent conduct of their life work, will they become important factors in the community, State and Nation.

The common people of our country are every year becoming better educated, and their education means enlightenment as to conditions most conducive to their health and happiness. This enlightenment also causes a looking to the medical profession for means of protection against all preventable diseases.

Just as the aggregate of knowledge possessed by the whole medical profession in the State is by comparison greater than that of one county or individual, so its power for the accomplishment of good will be found to exist in a similar ratio.

The most learned and accomplished physician in any city or county cannot in any sense or way exert an influence equal to that of all the physicians of his city or county. Nor can the entire body of physicians in any one State exert the potential influence of those of all the States.

The President of the Illinois State Medical Soety says in his letter: There are now enrolled five hundred members of the State society. As every county should have its county society, with an enrollment of the name of every physician in the county, so the county enrollment should constitute the enrollment of the State society. This would give the Illinois State Medical Society a membership of more than five thousand in place of five hundred. And the influence of the State society in all public affairs would be increased ten-fold. We would have our readers stop right here, and think of the enormous value of a ten-fold increase of professional influence in this State. And that the same reasoning applies in proportion to the similarity of conditions to every other State in the Union.

The several State societies being thus organized and constituted of the entire membership of the county societies, we would have all the State societies focus in one grand federation—The American Medical Association. Will every one of our readers stop again for the consideration of the immensity of such an organization as this, and how its power for work, its power for good to all the people of this great Nation, would be absolutely irresistible.

The State societies being thus organized and constituted of an enrollment of all the physicians in every county, would have, and be able to exert, an influence that would be felt in the government of every charitable, eleemosynary and educational institution in the State. We have faith to believe that the time would never come under such conditions, when insane asylums, charity hospitals and infirmaries would be made political partisan machines. Would not that alone inure greatly to the advantage and interest of all the people? The State Medical Society would never recommend the appointment of a health commissioner who would permit an engineer of a city waterworks to continue pumping foul, poison laden water from a near shore intake for weeks and months, when he had a comparatively pure water at his command, but which was only obtainable at an expense of a little more fuel and steam. Such officials are invariably of the radical partisan order, and their crime is manslaughter. It should be one of the functions of a city health officer to prosecute such men as criminals, and that with vigor.

The Chicago Medical Society showed what professional influence it was able to exert when it made a report upon the vile character of the city milk supply, and obtained legislation that gives a reasonably good inspection and guarantee of pure milk.

The enrollment of every physician in his county society would speedily place the county infirmary within its supervision, and give every schoolhouse, church and public building a periodical sanitary inspection. With the medical profession casting their votes as one man for purposes of reform, their power would be speedily recognized.

With a federation of such complete State organizations, we think there is no one so near-sighted as not to be able to see the commanding influence that would be exerted whenever special Congressional legislation is asked for what is believed by the medical profession to be in the interest of the people.

The medical profession is now and ever will be non-partisan on all such issues.

The American Medical Association petitioned Congress to enact a law creating a Cabinet officer of Public Health. That petition was unheeded, which may have been because the Association consisted of less than six thousand delegates. Perhaps the result would have been different if the petition had been backed by the

more than one hundred thousand physicians of the United States, speaking directly to every senator and member of Congress. It is some satisfaction to know that the political partisanship of the National government changed soon after the turning of a deaf official ear to the righteous petition of the American Medical Association.

That assurance of success in this and other directions may in the future be rendered doubly sure, we are constrained to ask every physician in the State of Illinois who has the good of his profession at heart to respond to the earnest request of DR. INGALS by securing the enrollment of his name as a member of the State society. Every member of the State society should constitute himself a committee of one to bring in ten more members, and the good work will be speedily accomplished. This matter should be taken up by every local society in the State. What is said of the Illinois State and local societies we say to those of every other State.

We believe the committee on revision of the Code of Ethics, Constitution and By-laws of the American Medical Association will make such a report as to commend it so fully to the minds of all right thinking physicians, that they will be constrained to give it their whole hearted support. That being done, such a National, State and county organization as that we have outlined is practical and may be carried into effect.

Reference has only been made to the great value of society organization as it pertains to the welfare of the individual and to the State. Co-equal benefits would accrue to the medical profession in the furtherance of the science and art of medicine. This would come about through the necessary endowment of medical departments in universities, from which would follow a better qualified grade of medical students, who would in turn receive instruction from better qualified and better paid instructors. From this source will come the medical profession of the future.

ASSOCIATION NEWS.

PRELIMINARY REPORT.

The following is the preliminary report of work for the approaching meeting of the American Medical Association in Milwaukee in June. Members of the Association who contemplate reading papers before the Section on Anatomy and Surgery, and also those who may wish to discuss such papers as have been or may be offered, will please communicate with

JAMES T. JELKS, M.D., *Chairman*,
Section on Anatomy and Surgery.

Nephrectomy, by Dr. J. H. Carstens, Detroit, Mich.
Gastroliths, by Dr. W. B. Outten, St. Louis, Mo.
Dr. H. O. Walker, Detroit, Mich. Title not given.
Nephrectomy or Nephrotomy? By Dr. Joseph Price, Philadelphia, Pa.
Appendicitis, by Dr. Joseph Hoffman, Philadelphia, Pa.
Dr. Joseph Pancost, Philadelphia, Pa. Title not given.
Dr. John B. Roberts, Philadelphia, Pa. Title not given.
Amputation below the Knee and Artificial Limbs for same, by Dr. Mordecai Price, Philadelphia, Pa.
Dr. Ernest Laplace, Philadelphia, Pa. Title not given.
Prophylaxis of Intestinal Obstruction following Operations, by Dr. W. Easterly Ashton, Philadelphia, Pa.
Appendicitis, by Dr. E. E. Montgomery, Philadelphia, Pa.
Diagnosis and Treatment of Chronic Intestinal Obstruction, by John B. Deaver, Philadelphia, Pa.
Treatment of Compound Fractures, by Dr. Paul Vasterling, St. Louis, Mo.
Dr. F. Gaston McFadden, Atlanta, Ga. Title not given.
Dr. N. Senn, Chicago, Ill. Title not given.
Dr. Christian Fenger, Chicago, Ill. Title not given.
Dr. Donald McLean, Detroit, Mich. Title not given.
The New Treatment of Hernia, by Dr. Alexander Dallas, New York.
Dr. W. H. Wathen, Louisville, Ky. Title not given.
Dr. Hunter McGuire, Richmond, Va. Title not given.
Dr. C. A. L. Reed, Cincinnati, Ohio. Title not given.
Dr. Dessasure Ford, Augusta, Ga. Title not given.
Ample Incision, by Dr. George Ben Johnson, Richmond, Virginia.
Dr. W. C. Dugan, Louisville, Ky. Title not given.
Dr. H. O. Marcy, Boston, Mass. Title not given.
A Rational Treatment of Prostatic Obstruction in Old Men, by Dr. George W. Broome, St. Louis, Mo.

BOOK REVIEWS.

A TEXT-BOOK OF PRACTICAL THERAPEUTICS, WITH ESPECIAL REFERENCE TO THE APPLICATION OF REMEDIAL MEASURES TO DISEASE AND THEIR EMPLOYMENT UPON A RATIONAL BASIS. By HOBART AMORY HARE, M.D. B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, etc. Third Edition, Enlarged and thoroughly Revised. Philadelphia: Lea Brothers and Co. 1892.

Only two years have elapsed since the first edition of this book appeared, and it was exhausted within six months of its publication. It is fair to construe the call for a third edition within so short a time as a generous endorsement of the first two, although we have no intimation as to the size of those editions.

The first 378 pages are devoted to a consideration of general therapeutics, drugs and other remedial measures, and foods for the sick. The remainder of the 698 pages is taken up by a practical application of these remedies to the cure of various diseases, by the tables of doses and remedies, and by the indexes of remedies and diseases.

The plan of the book is a model one. The drugs and diseases are readily found, without reference to the indexes, alphabetically arranged as in Quain's Dictionary of Medicine. The English names of diseases are adopted.

The articles in the domain of the specialties have been prepared by Drs. De Schweinitz, Edward Martin, B. C. Hirst and J. H. Reeves.

Many drugs of recent introduction, as salophen, diuretin, europhen, dermatol, the salts of strontium, etc., are included in this edition. The broad and fair manner in which the author treats the investigations of others is manifested in the page on diuretin. He says: "In all cases in which the writer has tried sodio-salicylate of theobromine he has failed to see any effect produced, and while he has no confidence in the drug, mentions it because others claim to have obtained results from its use."

The work is designed as a text-book for undergraduates as well as for practitioners, and will prove very satisfactory with some exceptions. It is our duty to criticise such exceptions. Let us look up the subject of menthol. The index refers us to page 253. Menthol is not there. The title is found on page 230, and a note here refers us to page 270, which contains the article on peppermint, and finally on

page 271 we find what we want. Another disappointment greets us here in the vague style in which the subject is presented. The author informs us that in coryza menthol produces "great relief in the saturated solution of about one grain to the ounce." The ounce of what? He does not say what menstruum will be saturated in the proportion of one grain to the ounce. The only solvents mentioned are water, alcohol and ether. He cannot mean oil or liquid vaseline. The latter is used universally by rhinologists as the solvent, but even 100 grains to the ounce will not saturate it. He speaks of the spray, but the only solvents given are those not employed for the purpose of sprays.

Of benzoin the author says: "The drug cannot be used in an atomizer, as it clogs the tips." It is in common use in the form of benzoinol and benzoated lavoline, alone and in combination with other inhalants, for spraying the nose and throat with atomizers. These preparations of benzoin do not clog the atomizer tips.

On page 168 the dose of elaterin reads from ⅓ to 1-16 of a grain. It was probably intended to read from 1-30 to 1-16. The cipher of the 1-30 had undoubtedly dropped out of the printer's form before it went to press. With this exception the doses agree with those given in the U. S. Dispensatory.

The section on the treatment of diseases is full of interest and suggestiveness. It abounds with new remedies that lend a freshness and charm to the text. The treatment of asthma occupies three pages. Even the pathology is discussed, and the conclusions are logical and are warranted by the latest reliable researches. The same number of pages is devoted to the complex complaint called biliousness, and the treatment of the subject is unusually rational and admirable. Bright's disease, acute and chronic, is given less than two pages.

It is unfortunate that there are such irreconcilable differences of opinion and experience between honest and competent observers. Dr. Hare prescribes caffeine with the utmost confidence in its efficacy. Indeed, he places it first in the list of diuretics in his physiological classification of drugs; but a well-known specialist and authority in renal diseases recently expressed to the writer his utter lack of confidence in this same drug. The book abounds in such reminders.

Poultices, so abhorred in the late writings of the great American surgeon, are accorded an honored place in the treatment of inflammations.

There is a good article of four pages on coryza, and about six pages on chronic catarrh. Typhoid fever and syphilis are each given five pages, tuberculosis six, puerperal disease nine, and pneumonia ten pages.

The index is carelessly compiled. Page 29 is given for antifebrin instead of 39; 20 for atomization instead of 21 and 22; 21 for hypodermic medication instead of 20.

The new remedies and the exhaustive polysyllabical chemical nomenclature have enlarged this edition. As an example of the extravagant and lavish multiplication of letters and the almost paralyzing demands upon the tongue, unequalled by the Egyptians, the writer would mention (if he could) the chemical name of hypnol with its forty-two letters. Here it is:

Manotrichloracetyledimethylphenylpyrazalon.

TRANSACTIONS OF THE TWENTY-THIRD ANNUAL SESSION OF THE MEDICAL SOCIETY OF VIRGINIA HELD AT ALLEGHANY SPRINGS, VA., SEPTEMBER 13, 14, AND 15, 1892. Richmond: J. W. Ferguson & Son, Printers; 1892. Pp. 308.

This volume contains the usual papers and discussion of the annual meeting of the Medical Society of Virginia. The papers all appear to be of a practical value, embodying mostly reports of difficult cases and operations, but there are also discussions on such general subjects as vertigo, bacteria and disease, puerperal fever. A commendable feature of this report is a biographical register of the fellows of the Society, which occupies the last fifty pages of the book. The Society numbers 728 active and twenty-five honorary fellows.

MISCELLANY.

NEW BY-LAWS, PAN-AMERICAN MEDICAL CONGRESS.—*Languages*:—By-Law IX. Papers may be read in any language providing that authors of the same shall furnish the Secretary-General with an abstract not exceeding six hundred words in length in either of the official languages, (English, Spanish, French or Portuguese) by not later than July 10, 1893, and providing further, that a copy of each such paper shall be furnished in either of the official languages, at or before the time of the meeting, to the secretary of the Section before which the same shall be read. Remarks upon papers may be made in any language, providing that members making such remarks shall furnish a copy of the same in either of the official languages before the adjournment of the session.

Publication:—By-Law X. All papers read either in full or by title shall be immediately submitted for publication in the Transactions (Special regulation 3) but authors may retain copies and publish the same at their pleasure after the adjournment of the Congress.

Constituent Organizations.—By-Law XI. All medical, dental and pharmaceutical organizations, the titles of which have been transmitted with approval to the Committee on Organization, or which may hereafter be transmitted with approval to any member of the International Executive Committee, each for his own country, shall be subject to election by the Executive Committee, approved by the President as constituent bodies of the first Pan-American Medical Congress, and each organization thus constructed shall have the right to designate as delegates all of its members attending the Congress, but no such organization shall meet at the time and place of meeting of the Congress as a distinct body, providing that the secretary of each such constituent body shall furnish a list of officers and a statement of the number of members of his respective organization to the Secretary-General not later than sixty days before the meeting of the Congress and shall forward a list of delegates chosen, to reach the Secretary-General before the opening of the Congress.

PRELIMINARY PROGRAMME of the eighth annual meeting of the Association of American Physicians, to be held in the Army Medical Museum and Library Building, Washington, D. C., on May 30, 31 and June 1, 1893:

1. The President's Address, A. L. Loomis, New York.
2. Discussion on Myxœdema. Referee—F. B. Kinnicutt, New York. Co-Referees—J. J. Putnam, Boston, M. Allen Starr, New York.
3. Sporadic Cretinism in the United States, William Osler, Baltimore.
4. Supplementary Report on Amœbic Dysentery, William Osler, Baltimore.
5. Some Problems in the Etiology and Pathology of Texas Cattle Fever and their bearing on the Comparative Study of Protozoan Diseases, Theobald Smith, Washington.
6. Experiments with the Bacillus Diphtheriæ, A. C. Abbott, Philadelphia.
7. The Parasitic Nature of Cancer, Heneage Gibbes, Ann Arbor.
8. A New Pathogenic Bacillus, H. C. Ernst, Jamaica Plains.
9. Gonorrhœal Myocarditis, W. T. Councilman, Boston.
10. The Prophylaxis of Cholera with especial reference to Immunization, E. O. Shakespeare, Philadelphia.
11. Creosote in the Treatment of Tuberculosis, J. T. Whittaker, Cincinnati.
12. On a Simple Continued Fever, G. Baumgarten, St. Louis.
13. The Treatment of Typhoid Fever, S. A. Fisk, Denver.
14. The Intestinal Treatment of Chlorosis, F. Forchheimer, Cincinnati.
15. Probable Origin and Early Symptoms of certain Chronic Diseases of the Kidneys, C. S. Bond, Richmond, Ind.
16. The Reactions of the Urine with Ether, A. H. Smith, New York.

17. A Study of Addison's Disease and of the Adrenals, W. G. Thompson, New York.
18. Two Cases of Cystin Calculus, James Tyson, Philadelphia.
19. Two Cases of Diaphragmatic Hernia, James Tyson, Philadelphia.
20. Subphrenic Abscess, with especial reference to cases which simulate Pneumo-Thorax, A. L. Mason, Boston.
21. Subphrenic Abscess, S. J. Meltzer, New York.
22. Sarcoma of the Lung, with Specimen, D. W. Prentiss, Washington.
23. Pulsating Pleural Effusions, Jas. C. Wilson, Philadelphia.
24. The Importance of Uterine Displacements in the production of Vomiting during the early stages of Pregnancy, G. M. Garland, Boston. To be discussed by Drs. W. T. Lusk and W. M. Polk.
25. Experimental Observations concerning the Nature of Chorea, H. C. Wood, Philadelphia.
26. W. M. Polk, New York, title to be announced later.

There will probably be time at the meeting for the reading of two or three papers more than those on this program. Members who desire to contribute such papers are requested to send the titles of them to the Secretary, Dr. Henry Hun, 149 Washington Ave., Albany, N. Y.

The Constitution provides that papers shall not exceed thirty minutes in the reading.

THE AMERICAN ASSOCIATION FOR THE STUDY AND CURE OF INEBRIETY will hold a special meeting at the hall of the New York Academy of Medicine, No 19 West 43d Street, New York City, March 23, 1893, at 8 P.M.

The subject for discussion will be "Specific Remedies for the Treatment and Cure of Alcoholic and Opium Inebriety."

Short papers will be read by Dr. Norman Kerr, of London; Drs. Kiernan, Clevenger, and Moyer, of Chicago; Dr. Hughes, of St. Louis; Dr. Peterson and Clark Bell, Esq., of New York; Drs. Mason, Mann, and Wood, of Brooklyn; Dr. Day, of Boston; Dr. Crothers, of Hartford; Dr. Russell, of Winchendon, Mass.; Dr. Quimby, of Jersey City, and others.

MEDICAL ASSOCIATION OF GEORGIA.—The Forty-fourth annual session of the Medical Association of Georgia, will be held in Americus on April 19, 20 and 21st.

President, A. A. Smith, M.D., Hawkinsville; Vice-Presidents, Geo. J. Grimes, M.D., Columbus, Robt. H. Taylor, M.D. Griffin; Secretary, Dan H. Howell, M.D., Atlanta; Treasurer, E. C. Goodrich, M.D., Augusta.

BOIL IT DOWN.*

Just a word to those good doctors,
Who are meditating deep,
On a paper they're preparing,
Full of thoughts too good to keep—
Boil it down.

'Tis not words, but facts, we're wanting;
Therefore prune and pare with pains
Your scholastic evolution
Till an essence pure remains—
Boil it down.

Let the meeting at Milwaukee
Be a feast for every soul
Who attends. And let the papers
Be as brief as Moses' scroll—
Boil them down.

You'll remember former meetings,
There were papers, less or more,
Hardly worth the time to listen—
We have all been there before—
Boil it down.

Welcome every fresh advancement,
Hail, each new discovered fact,
But in writing a description
That attention will attract—
Boil it down.

And remember that discussions
All of interest all agree;
So your paper should invite it;
Make it short as well may be—
Boil it down.

—W. E. WARD, M.D., Fenton, Mich.

* Relative to the meeting of the A. M. A., at Milwaukee, Wis., June, 1893.

DR. A. R. BATES, of Cleveland, O., is a member of the Advisory Council of the Ophthalmological Section of the Pan-American Congress.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from March 4, 1893, to March 10, 1893.

First Lieut. Henry R. Stiles, Asst. Surgeon U. S. A., will be retired from duty at Jefferson Bks., Mo., on receipt of this order at that post, and will report in person to the commanding officer, Ft. Omaha, Neb., for duty at that post.

Capt. Marcus E. Taylor, Asst. Surgeon U. S. A., will be relieved from duty at Vancouver Bks., Washington, at the expiration of his present leave of absence, and will report in person to the commanding officer, Ft. Logan, Col., for duty at that post.

OFFICIAL LIST OF CHANGES of Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service, for the four weeks ended March 3, 1893.

Surgeon R. D. Murray, when relieved, to proceed to Key West Quarantine for duty. March 1, 1893.

Surgeon P. H. Bailhache, to proceed to New York City for duty. February 13, 1893.

Surgeon George Purviance, detached as chairman, board of examiners, February 13, 1893. To inspect Reedy Island, Delaware River. February 23, 1893.

Surgeon W. H. H. Hutton, to proceed to Solomon's Island, Md., as inspector, February 6, 1893. When relieved, to proceed to Detroit, Mich., for duty. February 13, 1893.

Surgeon J. B. Hamilton, detailed chairman of board to prepare quarantine regulations, February 16, 1893. Detailed as chairman of board to examine officer Revenue Marine Service. February 28, 1893.

Surgeon H. W. Smith, detailed as member of board to prepare quarantine regulations. February 16, 1893.

Surgeon J. M Gassaway, detailed as member board of examiners. February 13, 1893.

Surgeon G. W. Stoner, to proceed to Baltimore, Md., for duty. February 13, 1893.

P. A. Surgeon H. D. Geddings, detailed as recorder of board to prepare quarantine regulations. February 16, 1893.

P. A. Surgeon C. P. Wertenbaker, detailed as recorder of board to examine officer Revenue Marine Service.

Asst. Surgeon A. W. Condict, ordered to examination for promotion. February 14, 1893.

Asst. Surgeon S. H. Hussey, ordered to examination for promotion. February 14, 1893.

Asst. Surgeon J. C. Perry, ordered to examination for promotion, February 14, 1893. To proceed to Savannah, Ga., for temporary duty. February 25, 1893.

Asst. Surgeon A. C. Smith, ordered to examination for promotion. February 14, 1893.

Asst. Surgeon M. J. Rosenau, to proceed to Hamburg, Germany, for temporary duty, February 14, 1893. When relieved, to proceed to Antwerp, Belgium, for duty. February 25, 1893.

Asst. Surgeon J. A. Nydegger, to proceed to Charleston, S. C., for temporary duty. February 24, 1893.

Asst. Surgeon J. M. Eager, to proceed to Key West, Fla., for duty. March 1, 1893.

Surgeon John Godfrey, when relieved, to proceed to San Francisco, Cal., for duty. February 13, 1893.

Surgeon Fairfax Irwin, detailed for duty in office of the U. S. Consul, Marseilles, France. February 25, 1893.

Surgeon W. A. Wheeler, detailed as recorder board of examiners, February 13, 1893. Detailed as member of board to prescribe quarantine regulations. February 16, 1893.

P. A. Surgeon Eugene Wasdin, to proceed to Baltimore, Md., for temporary duty. February 23, 1893.

P. A. Surgeon J. H. White, to proceed to Hamburg, Germany, for duty. February 27, 1893.

P. A. Surgeon P. M. Carrington, granted leave of absence for seven days. March 1, 1893.

P. A. Surgeon L. L. Williams, when relieved, to proceed to Charleston, S. C., for duty. February 14, 1893.

P. A. Surgeon W. D. Bratton, detailed as member of board to examine officer Revenue Marine Service. February 28, 1893.

P. A. Surgeon J. J. Kinyoun, detailed as member of board to prepare quarantine regulations. February 16, 1893.

P. A. Surgeon G. M. Guiteras, to proceed to Gulf Quarantine station for duty. February 23, 1893.